

Thomas Bain, Road Building and the Zwartberg

Pass:

**with particular emphasis on socio-economic and
civil engineering aspects in the Southern Cape,**

c. 1843-1962



by

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"Declaration"

I the undersigned hereby declare that the work contained in this thesis is my own original work and has not previously in its entirety or in part been submitted at any university for a degree.

Dedicated to : my father-in-law, Mick Radford

TABLE OF CONTENTS

	<u>Page</u>
ILLUSTRATIONS	iv
PREFACE	xii
1. INTRODUCTION	1
2. PIONEER PATHS AND WAGON TRACKS (The Cape Colony before 1843)	7
2.1 Road building, maintenance and communication links to 1843	7
2.2 The migration eastward	9
2.3 Attaquas Kloof	11
2.4 Plattekloof	13
2.5 Caledon Kloof and Huis River Pass	13
2.5.1 Caledon Kloof	13
2.5.2 Huis River Pass (1896)	14
2.6 Cradock Kloof	14
2.7 Devil's Head	17
2.8 Kaaiman's Gat	18
2.9 Paardekop and Paardepoort	19
2.9.1 Paardekop	19
2.9.2 Paardepoort	19
3. THE CAPE COLONY TO 1879	20
3.1 John Montagu and the Central Road Board	20
3.2 Andrew Geddes and Thomas Charles John Bain	23
3.2.1 Andrew Geddes Bain	23
3.2.2 Thomas Charles John Bain	23
3.3 Montagu Pass - The route to the Eastern Frontier	29
3.4 Cango Poort	31
3.5 Meiring's Poort	32
3.6 Seven Weeks Poort	39
3.7 Prince Alfred's Pass	41

3.8	Robinson's Pass	42
3.9	Tradouw Pass	43
3.10	Garcia Pass	45
3.11	Cogman's Kloof	46
3.12	The Olifants River Bridge	47
3.13	Mossel Bay and coastal communication	49
4.	CONVICT LABOUR	53
4.1	The Convict Labour System	53
4.2	Convict Labour on the Zwartberg Pass	62
5.	AN INTRODUCTION TO THE BUILDING OF THE ZWARTBERG PASS	74
5.1	The Geology and topography of the Cape Colony	74
5.2	Petition	78
5.3	Survey and Planning	82
5.4	Opposition to and debate on the pass	95
5.4.1	Opposition	95
5.4.2	The communication debate	98
5.5	Railway development	99
5.6	Prince Albert and Oudtshoorn and their contribution to the Zwartberg Pass	107
5.7	John Tassie	113
6.	THE BUILDING, COMPLETION AND OPENING OF THE ZWARTBERG PASS, AND SCHOEMAN'S POORT	120
6.1	Civil Engineering Aspects	120
6.1.1	Dry Stone Pack Retaining Walls	120
6.1.2	Dynamite and Gunpowder, or Fire and Water?	123
6.1.3	Drainage	126
6.1.4	The Zwartberg and the work of Thomas Bain in modern comparison	128
6.1.4.1	Routing and Construction	128
6.1.4.2	Environmental Impact	131
6.2	The progress of works on the Zwartberg Pass	134

	iii
6.3 The opening	140
6.4 Schoeman's Poort	144
7. THE ZWARTBERG PASS IN A SOCIO-ECONOMIC PERSPECTIVE	148
7.1 Markets and economic conditions	148
7.2 The toll system	149
7.3 Social Mobility	154
7.4 The Zwartberg Pass vs the Mossel Bay Harbour	156
7.4.1 The freight controversy	156
7.4.2 An alternative gateway	158
7.5 Post and Telecommunications	160
7.6 Miscellaneous factors	163
8. ROAD MAINTENANCE, CONTRIBUTION DISPUTES, 20TH CENTURY DEVELOPMENT AND THE ZWARTBERG PASS	166
8.1 Road Maintenance	166
8.2 Contribution Disputes	169
8.3 Road Development in the 20th Century	172
9. GAMKASKLOOF	177
9.1 Overview	177
9.2 "The road to hell"	179
10. CONCLUSION	186
SUMMARY	191
APPENDIX	195
BIBLIOGRAPHY	218

ILLUSTRATIONS

1. Map indicating various positions of passes, past and present, in the greater Southern Cape region, opposite p. 1. Map : Drawn by G.G. Frauenstein - from one in J. Burman: *The Little Karoo*, inside cover page.
2. A view of a retaining wall and cutting in the Huis River Pass, opposite p. 14. Photo: M.D. Radford, August 1991.
- 3.i. A view of the old Cradock Pass, now part of a hiking trail, opposite p. 15. Photo: M.D. Radford, December 1991.
- ii. A view of the inhospitable terrain over which the Cradock Pass runs, opposite p. 15. Photo: M.D. Radford, December 1991.
- 4.i. Another view of the Outeniqua Range over which the Cradock Pass runs, opposite p. 16. Photo: M.D. Radford, December 1991.
- ii. A view of the old Cradock Pass, opposite p. 16. Photo: M.D. Radford, December 1991.
- 5.i. A view of a stone pack on the old Cradock Pass, opposite p. 17. Photo: M.D. Radford, December 1991.
- ii. A painted wagon on a rock marking the route of the old Cradock Pass, opposite p. 17. Photo: M.D. Radford, December 1991.
6. Thomas Charles John Bain, opposite p. 23. Photo: Jagger Documents Library, U.C.T.
- 7.i. A view of the old toll house on the Montagu Pass with the Outeniqua Pass in the background, opposite p. 29. Photo: M.D. Radford, December 1991.
- ii. A view of the Montagu Pass winding up the Outeniqua Mountains, opposite p. 29. Photo: M.D. Radford, December 1991.
8. A view of the various routes crossing the Outeniqua : the railway crossing in the foreground, the Montagu Pass in the middle, and the Outeniqua Pass in the background, opposite p.

30. Photo: M.D. Radford, December 1991.
9. A topographical sketch by Thomas Bain of the Southern Cape and Little Karoo showing various mountain passes, road routes and principal features, opposite p. 31. Photocopy of original sketch: Cape Archives Depot, P.W.D. 2/33, 30/3/1882.
10. Map accompanying Thomas Bain's report on the destruction of Meiring's Poort, opposite p. 32. Photocopy of original: Cape Archives Depot, M3/3044, 22/6/1885.
11. Two views of the road to Seven Weeks Poort, opposite p. 39. Photos: M.D. Radford, August 1991.
12. Two views of the road through Seven Weeks Poort, opposite p. 40. Photos: M.D. Radford, August 1991.
13. A rock profile in Seven Weeks Poort, opposite p. 41. Photo: M.D. Radford, August 1991.
14. A view of the Tradouw Pass. Note how the new realigned route cuts through the spur while Bain's old road goes around it, opposite p. 43. Photo: M.D. Radford, August 1991.
- 15.i. A view of the old and new stone packs in Tradouw Pass. Much of the new tarred road runs over Bain's original road, opposite p. 44. Photo: M.D. Radford, August 1991.
- ii. A view of the stone pack and cutting in Tradouw Pass, opposite p. 44. Photo: M.D. Radford, August 1991.
16. The old toll-house in Garcia Pass, opposite p. 45. Photo: M.D. Radford, August 1991.
17. A view of the ruins of the convict station ("blikstasie"), opposite p. 62. Photo: M.D. Radford, 1992.
18. A view of what the convict station originally looked like, opposite p. 63. Photo: Cape Archives Depot, J 10644.

19. Views of rock profiles in the Zwartberg Mountains near the northern entrance to the pass illustrating the intense warping, folding and overfolding, opposite p. 74. Photos: M.D. Radford, 1992.
20. A view of vertical folding in the Zwartberg Pass taken from north of "Eerstewater" onto a Western buttress, opposite p. 75. Photo: Cape Archives Depot, J 10640.
21. Two views of the northern entrance to the Zwartberg Pass, opposite p. 78. Photos: M.D. Radford, 1992.
22. A theodolite, possibly like that used by Thomas Bain, opposite p. 82. Photo: Taken by G. Cooper from Fort Hare University Land Surveying Department, 1992.
23. Plan and sketch of the Zwartberg Pass, opposite p. 85. Photocopy of original by Thomas Bain: Cape Archives Depot, M 3/533.
24. Aerial photo of the Great Zwartberg range indicating the pass and part of the Otto du Plessis road, opposite p. 86. Photo: Trig. Survey, Mowbray.
- 25.i. Sketch by W. Grier giving dimensions of planned hairpin bends on the Zwartberg Pass, opposite p. 94. Photocopy of original: Cape Archives Depot, P.W.D. 1/547, no. 201.

ii. A view of one of the hairpin bends in the Zwartberg Pass, opposite p. 94. Photo: M.D. Radford, 1992.
26. "Map showing Railways of Cape Colony open in 1882", opposite p. 101. Photocopy: Cape Archives Depot, G. 33-'82, p. 96.
- 27.i. A 19th Century view of Prince Albert with the Zwartberg Mountains in the far background, opposite p. 108. Photo: Cape Archives Depot, J 10638.

ii. A 20th Century view from approximately the same position, opposite p. 108. Photo: M.D. Radford, July 1993.

28. A view of the rock profile and the road just outside Prince Albert, opposite p. 109 . Photo: M.D. Radford, 1992.
29. Two views of the height of the dry stone pack at Boegoekloof (1886), opposite p. 120. Photos: M.D. Radford, 1992.
30. Two views of the dry stone pack just below the northern summit of the Zwartberg Pass, opposite p. 121. Photos: M.D. Radford, 1992.
- 31.i. A sectional sketch of the planned dry stone pack, filling, and cutting on the Zwartberg Pass by W. Grier, opposite p. 122. Photocopy of original: Cape Archives Depot, P.W.D. 1/547, no. 201.
- ii. Sketches of a stone pack wall, opposite p. 122. M.F. Downing: *Landscape Construction*, p. 173.
- 32.i. A southerly view from the summit of the Zwartberg Pass, opposite p. 123. Photo: M.D. Radford, July 1993.
- ii. A view of the road crossing the summit of the Zwartberg Pass, opposite p. 123. Photo: M.D. Radford, July 1993.
- iii. Three southerly views from the summit of the Zwartberg Pass including varying lengths of the dry stone pack wall, opposite p. 123. Photos: M.D. Radford, July 1993.
33. The tombstone of the former Clerk of Works on the Zwartberg Pass, John Fitz-Neville, in the Prince Albert cemetery, opposite p. 125. Photo: M.D. Radford, 1992.
- 34.i. A view of the height of the culvert at "Droë Waterval", opposite p. 126. Photo: M.D. Radford, 1992.
- ii. A sketch of the planned culverts in the Zwartberg Pass by W. Grier, opposite p. 127. Photocopy of original: Cape Archives Depot, P.W.D. 1/547, no. 201.
35. A culvert in the Zwartberg Pass, opposite p. 127. Photo: M.D. Radford, 1992.

36. Two views of the stone pack, culvert and date at "fonteintjie" (1884), opposite p. 128. Photos: M.D. Radford, 1992.
37. A view of a cut on the Outeniqua Pass, opposite p. 129. Photo: M.D. Radford, 1992. Had T. Bain built a pass over the same route he would have gone around the spur.
- 38.i. Two views of the side cutting just below "blikstasie" on the northern side of the Zwartberg Pass, opposite p. 131. Note the environment friendly nature of the work and also how nature has "reclaimed her own" after c. 100 years. Photos: M.D. Radford, 1992.
 - ii. A view of a "scar" (material and rubble etc. pushed over the side) on the Outeniqua Pass. Nature has a lot to do to reclaim this even after c. 50 years, opposite p. 131. Photo: M.D. Radford, July 1993.
39. Two views of the road up "the wall" and the blending of the stone pack with background, opposite p. 132. Photos: M.D. Radford, 1992.
40. Two views of the northern entrance to the Zwartberg Pass, the second showing the huge rocks that posed obstacles to the builders of the pass, opposite p. 134. Photos: M.D. Radford, 1992.
- 41.i. Two views of "Los klip" near the northern entrance to the Zwartberg Pass, opposite p. 135. Photos: M.D. Radford, 1992.
 - ii. A view of "the clock" (time showing 2.20) near the northern entrance to the pass, opposite, p. 135. Photo: M.D. Radford, 1992.
42. A view of a drift in the Zwartberg Pass ("Eerste Water"), opposite p. 136. Photo: Cape Archives Depot, J 10641.
43. A view of a drift in the Zwartberg Pass ("Tweede Water"), opposite p. 138. Photo: Cape Archives Depot, J 10639.

44. A spring-cart in the Zwartberg Pass (at "Tweede Water"), opposite p. 139. Photo: Cape Archives Depot, J 5686.
45. Two views of the road climbing "the wall", opposite p. 139. Photos: M.D. Radford, 1992.
- 46.i. The zig-zag on the wall on the northern side of the Zwartberg Pass, opposite p. 139. Photo: Cape Archives Depot, J 5348.
- ii. A 20th Century view from approximately the same position, opposite p. 139. Photo: M.D. Radford, July 1993.
- iii. Two views of the zig-zag on "the wall" from an "aerial" perspective, showing varying degrees of height, depth and contour, opposite p. 139. Photos: M.D. Radford, July 1993.
- iv. A third "aerial" view of "the wall" and zig-zag, opposite p. 139. Photo: M.D. Radford, July 1993.
47. Two northerly views i. from the summit, and, ii. from "Teeberg" on the Zwartberg Pass, opposite p. 139. Photos: M.D. Radford, 1992.
- 48.i. A close view of the dry stone pack on the zig-zag near the northern summit of the Zwartberg Pass, opposite p. 139. Photo: M.D. Radford, 1992.
- ii. A view of the zig-zag near the summit of the Zwartberg Pass, opposite p. 139. Photo: M.D. Radford, 1992.
49. Boegoekloof (1886), opposite p. 139. Photo: M.D. Radford, 1992.
- 50.i. The ruins at "hotelletjie", opposite p. 139. Photo: M.D. Radford, 1992.
- ii. The ruins at "stalletjie", opposite p. 139. Photo: M.D. Radford, 1992.
51. A mule cart with attendant near the southern side of the Zwartberg Pass, opposite p. 139. Photo: Cape Archives Depot, J 10645.

- ii. A 20th Century view from nearly the same spot on the Zwartberg Pass, opposite p. 139. Photo: M.C. Radford, July 1993.
- 52. Two views of the Zwartberg Mountain Range over which the pass crosses from the south, opposite p. 139. Photos: M.D. Radford, July 1993.
- 53.i. The toll-house ruins near the northern summit of the pass, opposite p. 150. Photo: M.D. Radford, 1992.
- ii. A sketch of the toll-house on the ruins of the original toll-house, opposite p. 150. Photo: M.D. Radford, 1992.
- 54. Various plaques in the Zwartberg Pass, opposite p. 152. Photos: M.D. Radford, 1992.
- 55. The visit of Dr du Plessis to Gamkaskloof, opposite p. 177. Photo: Fransie Pienaar Museum, Prince Albert.
- 56. Two signs near the summit of the Zwartberg Pass pointing the way to Gamkaskloof, opposite p. 178. Photos: M.D. Radford, January 1991.
- 57.i. An entrance to Gamkaskloof taken before the dam and road were built, opposite p. 179. Photo: Fransie Pienaar Museum, Prince Albert.
- ii. The original mode of transport in Gamkaskloof, opposite p. 179. Photo: Fransie Pienaar Museum, Prince Albert.
- 58.i. The road into the valley, opposite p. 180. Photo: M.D. Radford, January 1991.
- ii. A view of the pass into the Gamkaskloof valley, opposite p. 180. Photo: Courtesy of Mr and Mrs P. Marx, Humansdorp.
- 59.i. A view from Bosluiskloof on route to the Gamkaskloof Dam, opposite p. 181. Photo: M.D. Radford, August 1991.
- ii. The Gamkaskloof Dam, opposite p. 181. Photo: M.D. Radford, August 1991.

- 60.i. One of the erstwhile "bakkies" of Gamkaskloof, opposite p. 182.
Photo: Fransie Pienaar Museum, Prince Albert.
 - ii. A view of the former school in Gamkaskloof, opposite p. 182.
Photo: Courtesy of Mr and Mrs P. Marx, Humansdorp.
61. Two buildings in Gamkaskloof, the second (previously the school) in need of repair, opposite p. 183. Photos: M.D. Radford, January 1991.

PREFACE

The topography of the Cape Colony and, in particular the area of the Southern Cape and Little Karoo, proved intimidating even for our intrepid pioneers. However, this is no reason for historians to have shied away from this area. Although geographically isolated until well into the 19th Century, it has not been until well into the second half of the 20th Century that any serious attempt has been made at scientific historical study and synthesis of the area. Dr André Appel's work, *Die distrik Oudtshoorn tot die tagtigerjare van die 19de eeu: 'n sosio-ekonomiese studie*, has thus been a pioneering work in its attempt to analyse the area in general, and the establishment and developmental stage of the Oudtshoorn district in particular. Julianne Wilson's work on the Overberg, *A Changing Rural Economy and its implications for the Overberg, 1838-1872*, has likewise taken an adjacent region in this Southern Cape/Little Karoo area and placed it under the historical microscope.

Many disciplines have zoned in on this "rich" area. Writers like D.C. Vermeulen (*Die Klein Karoo*), J.W. Momberg (*'n Regionale studie van die distrik Calitzdorp*) and N.C. Tait (*'n Geografiese studie van die noordelike hange van die Outeniekwaberge in die Oudtshoorn omgewing*) have looked at the area geographically while sociological and educational studies have also been undertaken.¹

1 As listed in A. Appel: *Die distrik Oudtshoorn tot die tagtigerjare van die 19de eeu: 'n sosio-ekonomiese studie*, (*Archives Yearbook*, 1988, II, p. xv).

Numerous popular and 'coffee table' works (eg. Sue van Waart's *Kannalandse Kamee* and *Swartberg en sy mense*, Patricia Storrar's *A Collosus of Roads*, and Helena Marincowitz's *Swartberg Pass*, Meiring's *Poort* and *Gamkaskloof*) as well as magazine and newspaper articles have dealt with particular aspects of the area. While they have stimulated interest in the area, they have also accentuated the fact that a vacuum exists, a vacuum only the historian can fill, for much that has been written (particularly by Sue van Waart and numerous journalists) has perpetuated legends, myths and inaccuracies concerning the area - particularly with regard to the topic which forms the focus of this study, the Zwartberg Pass. This study is thus an attempt to correct that imbalance and give an, arguably, fuller perspective.

To add mortar and substance to the structure of this study, a social, economic and civil engineering perspective will also be given. (Again, very little has been written on South African Civil Engineering history). The various chapters, divided on chronological and thematic lines, can stand as study units on their own. Indeed there is sufficient archival and other source material for independent studies to be made on each chapter topic touched on. Combining them under the umbrella of this work is an attempt to enhance and enliven, and thus to place the Zwartberg Pass, the centre of this study, in its proper regional, subject and historical perspective.

It is difficult to set precise parameters for a study which looks at economic and social implications (and especially of a line of

communication still being utilized). The dates indicated in the title (1879-1888) are used only in so far as they apply to the era during which the pass was being petitioned for, planned, built and officially opened. They are thus used as a general framework to chapter six. Indeed, chapter six must be seen as transcending these parameters, for the need for a pass was felt and expressed as early as in the 1840s, and the consequences of building the pass are still being felt today, for a line of communication is a living entity. Likewise, each chapter, although set within particular chronological limits and indicated so within each chapter, can be seen to transcend this structural framework.

This work encompasses the geographical, topographical, physical, geological, economic and social characteristics of the Southern Cape and Little Karoo.

Chapter two studies the pioneer paths and wagon tracks into, through and out of the area.

John Montagu, the man who initiated the growth phase in road and mountain pass building through the use of convict labour, the Central Road Board and various persons and topics of related interest are touched on in chapter three.

Chapter four deals with convict labour (a topic particularly well suited to further study), a subject of particular social and economic interest.

Chapter 5.1 seeks to place this work in its correct geological and geographic setting; while the remainder of chapter five through to eight, the essence of the study, looks at the majestic Zwartberg Pass itself, from its infancy to its completion and beyond. Included here are civil engineering aspects, survey methods and social and economic issues.

Gamkaskloof, more commonly and infamously known as "The Hell", is the subject of chapter nine. This valley has been linked to this study because the road that was built into it in the early 1960s branches off from near the summit of the Zwartberg Pass; the valley is in the Zwartberg Range; and the parallels it shares (social and economic) with the opening up of the regions on either side of the Zwartberg Range through the building of the pass are noteworthy. Much has also been written on this valley (mainly by journalists). The only significant scientific work on it is B.M. du Toit's, *The People of the Valley*, a sociological study with some historical background. Chapter seven looks more particularly at the road to Gamkaskloof.

It was my intention to have a section of Bain's work dissected to view the foundation level of the roadway. The time and cost factor (hiring of labour, etc.) would, however, not have justified the effort. The possible location of such a dissection was also problematic. Obviously it could not be done on the Zwartberg Pass, a national monument! Various preliminary investigations were made on a section of Meiring's Poort no longer in use, as probably being the best possibility. However,

as numerous washaways had occurred in Meiring's Poort over the years, it would have been difficult, if not impossible, to categorically state that the section dissected was a section built under T. Bain's supervision. A dissection here would, however, have provided a general indication of the method of construction and the techniques utilized during that period. Possibly then, this is an area for further research. One can nonetheless state fairly accurately that the method T. Bain employed is the method described in chapter 6.8.1.

Measurements and units given in the text have been given in their historical form. Thus £ s and d (pounds, shillings and pence) and not R and c (rand and cents) have been used. In addition, distances and measurements are given in feet and miles, respectively, but for convenience the modern equivalent in metric form is given in brackets after the older form. Here the conversion factors of 1 inch = 2,5400 cm, 1 yard = 0,9144 m, 1 mile = 1,6093 km, 1 ounce = 28,350 g, 1 pound = 0,4536 kg, 1 ton = 1,0161 tonnes, and 0,3861 sq miles = 1 sq km (km²), have been used. It is worth remembering that South Africa changed currency from £ s and d to R and c in 1962 on the basis of £1 being set at the equivalent of R2. Obviously this is no longer the exchange rate, thus for a modern comparison one would have to obtain the current rate of exchange.

The 'Z' in Zwartberg has also been retained in its historical form.

A good deal of credit for this work belongs to Mr M.D. Radford (Pr Eng B Eng Hons-Civil) to whom it is dedicated. Not only were many memorable kilometers and hours spent in his company (by car, motorbike and on foot), in the fieldwork underpinning this study; but it is he who inspired the work through his fascination and awe (which became mine) of Thomas Bain's work; he who took many spools of photographs (scrambling up rocks and mountain faces in the process at my whim); he who surveyed parts of the pass; he who suggested and helped take measurements of the convict station and other ruins; he who gave valuable insight into civil engineering methods and techniques used and in use ..., and so the list goes on. Criticism for this work, however, must be laid fully at my door for any inaccuracy and/or misinterpretation of information given and researched.

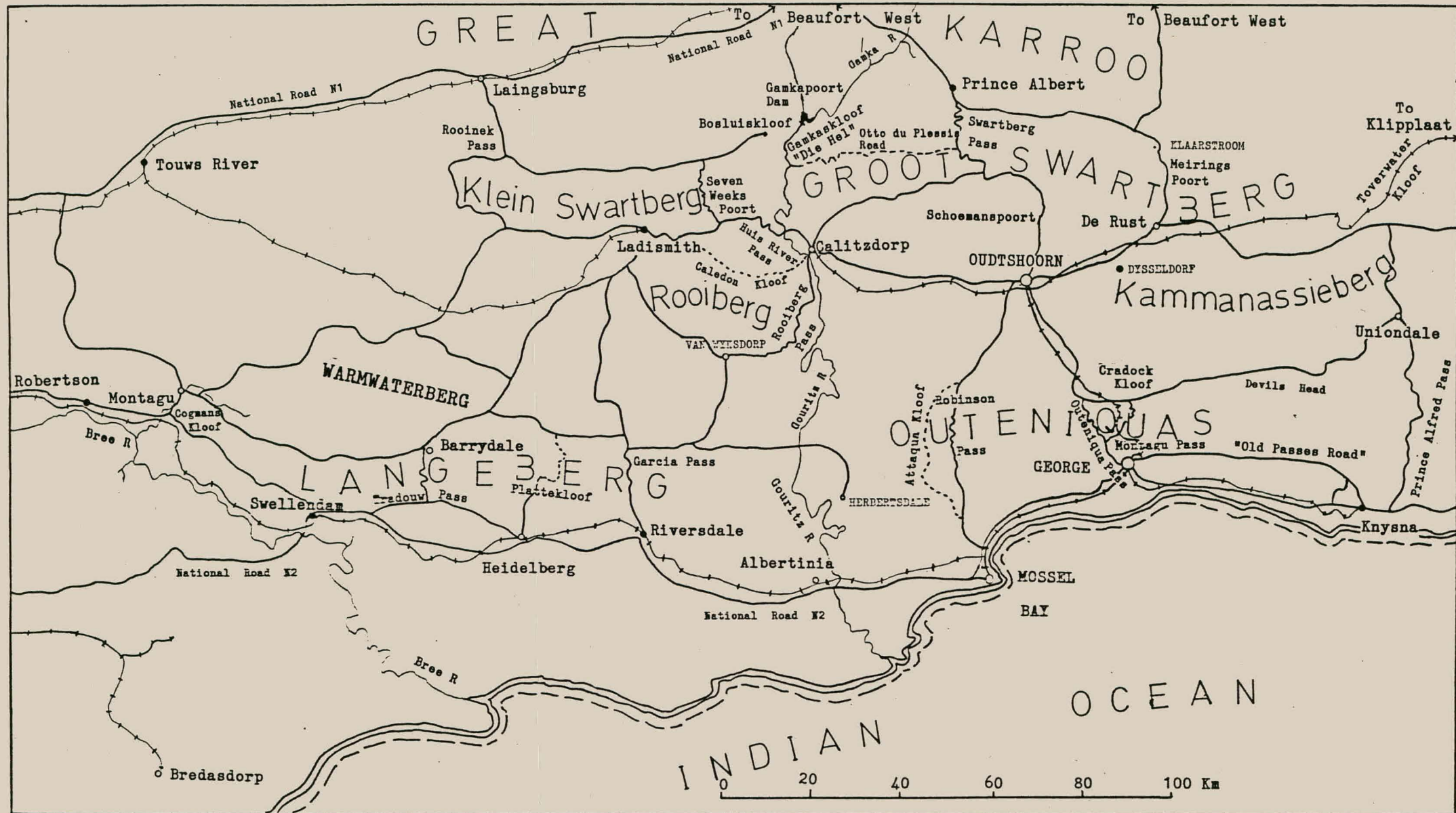
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T.M. Goetze

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CHAPTER 1

INTRODUCTION

The Little Karoo, like the Overberg,¹ forms a distinct geographical microcosm in the greater Southern Cape and interior region. This area was isolated from the coastal areas and thus the markets of Mossel Bay and George, as well as the markets of the Great Karoo (particularly Beaufort West) by seemingly impassable topographical obstacles. Moreover, for a long time (up to at least 1848) there were no markets, and for that matter, no towns within the Little Karoo (also known as Cannaland), to which its produce could be sent. Thus Cannaland was isolated, insular and indeed a microcosmic world 'unto' itself ('n "beperkte leefwêreld").²

Bad, unfinished and/or inadequate communication links, long distances, widespread and sparsely settled regions, and topographical obstacles typified the region and militated against unity, keeping the people isolated.³ This bred regionalism which existed for some time, even after various lines of communication between areas joined these areas socially and economically. A subsistence, agrarian economy was practised and this, along with the occasional/or monthly visit to church ("nagtmaal") encompassed the sum total social and economic activities of the

1 J. Wilson : A Changing Rural Economy and its implications for the Overberg, 1838-1872, p. i.

2 A. Appel : Die distrik Oudtshoorn tot die tagtigerjare van die 19de eeu : 'n sosio-ekonomiese studie (*Archives Yearbook*, 1988, II, p. 94).

3 *Ibid.*, p. 64.

people of the area. In a traditional society limited production takes place. The range of possibilities open to one's grandchildren is the range that would have been open to one's grandparents. This was the situation in the greater Southern Cape to approximately 1850.

However, new production functions in agriculture (e.g. G. Edmeades⁴ acquired a new harvester from England and an irrigation system was planned for the Oudtshoorn district) and industry did become available and new markets were created as the latter part of the 19th Century saw men of enterprise in transport and communication come to the fore.⁵

Social and economic evolution within a specific region is closely related to the manner and extent to which that region can communicate with surrounding areas and/or the outside world. In a subsistence farming economy, which the Little Karoo was until the second half of the 19th Century, the evolution from subsistence to commercialism or capitalism (i.e. with a market economy) is usually dependent on three factors:

- i. the improved use of natural resources
- ii. the availability of markets, and,
- iii. expedient communication between the place of production and the market.⁶

4 Chapter 5.6

5 W.W. Rostow : *The stages of economic growth*, pp. 5-9.

6 J. Wilson : *A Changing Rural Economy*, p. 80.

Production, consumption, exchange and the distribution of wealth is thus to a large extent dependent on communication, and a "good" communication system is essential for economic advancement. Commodities need to be transported to the places where they can be put to use. This then brings the producer and consumer together. The nett result of making a large quantity and variety of commodities available to the consumer through reducing the cost of gaining these articles would naturally mean an increase in the standard of living of the consumer. This in turn has the effect of increasing physical and mental vigour and efficiency is thus enhanced. The converse of this is that a lack of, or poor, transportation facilities would "promote stagnation and a low standard of living".⁷

The latter part of the 19th Century saw a tremendous improvement in communication through an extension of its facilities. The material culture of the Cape Colony was enriched through physical development in all fields. The foundations of and for road, and later rail, communications were laid. This included the construction of bridges and harbour facilities (all be they elementary). In the greater Southern Cape region the great need was for an effective communication link to be established between Mossel Bay and Beaufort West.⁸ One of the obstacles standing in the way was the Zwartberg Mountain range. The building of the Zwartberg Pass along with Seven Weeks Poort and Meiring's Poort

7 M.H. de Koch : *Economic History of South Africa*, p. 37.

8 D.E. Nel : *Die Hawe en Fabrieksnywerhede van Mosselbaai*, p. 15.

sought to redress the situation.

The wider perspective on this development was the general economic condition of the colony and the fluctuating cycles it generated. The 1820 to 1849 period was a period of moderate growth in the colony in which agricultural enterprise was emphasised. The period between 1850 and 1869 was one of rapid growth mainly as a result of the growth of the wood industry. However, the end of the period saw a marked slacking off and slowing down of the economy. The years between 1870 and 1895 were characterized by diamonds bursting onto the market and the rapid acceleration and expansion of the economy. Within this period one must note that a mini-depression was setting in as an aftermath of over-speculation in diamonds and the inflation of currency and credit. During the 1886 to 1909 "golden period" the economy rapidly expanded once again.⁹

By the 1880s communication links between Mossel Bay and the adjacent coastal region, and Beaufort West and the greater Great Karoo had been in operation for the better part of two decades. This certainly was a stimulus to both these regions and the Little Karoo. By 1886 railway development from the Cape reached Kimberley. This was a year during the period in which the Zwartberg Pass was being built. While the Zwartberg Pass would be a carrier of trade to the Kimberley market and would thus also benefit the Little Karoo and greater Southern Cape regions, the

9 C. Schumann : *Structural changes and business cycles in South Africa, 1806-1936*, pp. 46-47; M.H. de Kock: *Economic History of South Africa*, p. 52.

greater part of communication development which took place from the 1870s followed the discovery of diamonds and later, gold, and would thus ultimately leave these southerly regions sucking the hind teat!¹⁰

While it is difficult to specifically quantify growth and improvement in the standard of living of the inhabitants of the Prince Albert and Oudtshoorn districts, as a direct result of the building of the Zwartberg Pass, one may certainly more noticeably conclude (from various toll returns, trade and equivalent vehicle usage, EVU statistics) that there were certain of these positive attributes noticeable over the whole of the Cape Colony as a direct result of the greater pass building, road improvement and rail development era. A factor not to lose sight of, however, is the period of depression which set in over the whole Cape Colony during the first five to six years of the 1880 period (during which the Zwartberg Pass was being built), and one must question whether the improved statistics and toll receipts here (discussed in chapter 7) do not merely reflect a return to normality in the specific case of the Zwartberg Pass and the regions on either side thereof.

Be that as it may, the building of the Zwartberg Pass was not only important from an economic and social point of view, but it was (and still is) of tremendous interest for the perspective and insight it affords on civil engineering techniques and aspects, and thus one may agree that the history of civil engineering is

10 J. Wilson: A Changing Rural Economy, p. xvii.

not only gleaned from archival material, but also from works that still stand today.¹¹

11 J.P.M. Pannell : *An Illustrated History of Civil Engineering*, p. 11.

CHAPTER 2

PIONEER PATHS AND WAGON TRACKS

THE CAPE COLONY BEFORE 1843

2.1 Road building, maintenance and communication links to 1843.

Burman's comment that "early roads were not built, they happened" perhaps best sums up the situation in the Cape Colony until the early part of the 19th Century.¹ Carl Peter Thunberg shared a similar viewpoint:

Roads that can be properly so called are not found in all this southern part of Africa ... further down in the country, indeed, very often not the least vestige of a road appears.²

There were also no noteworthy bridges and only a few ponts were in existence to help early travellers cross the various rivers on their migration eastward.

Although one may be tempted to apply Burman's statement to the entire period up to 1843, when the new Secretary to the Governor, John Montagu, embarked on a comprehensive road development scheme in the Colony, one would be ignoring the efforts of those who built the Cradock Pass, Franschoek Pass, Sir Lowry's Pass, Houw Hoek Pass, Howison's Poort, and the work of the Royal Engineers

1 J. Burman : *So high the Road - Mountain Passes of the Western Cape*, p. 1.

2 As quoted in J. Burman : *So far the horizon*, p. 67; See also V.S. Forbes : *Pioneer Travellers of South Africa - A Geographical commentary upon routes, records, observations and opinions of travellers at the Cape, 1750-1800*, pp. 25, 30, 31.

in the two decades prior to this date.

The early travellers converted game trails - paths tramped by nomadic San, Khoi, safari leaders, refugees from tribal wars etc. - into tracks with their wagon wheels. The routes that existed were to be maintained under the direction of the "landdrost and heemraden" and the "baaspadmakerstelsel" (Master road building and maintenance system). Under this system colonists took on the role of road overseers and maintainers. Road lists were drawn up by the "landdrost and heemraden" to keep district roads maintained. Colonists who did not do their duties were to be charged and fined. For the system to be effective though, it needed enough labourers and tools, and the short supply of both was its downfall. The system lasted until 1843.³

In 1825 Major Holloway of the Royal Engineers asked for 800 convicts from England to help repair colonial roads. He also called for skilled labour, to consist of 35 joiners, 50 masons, 12 smiths, 20 wheelwrights, explosive experts, etc. to help maintain the roads.⁴ It was not until 1843, however, that road development and maintenance was placed on a more solid foundation.

3 A. Appel : Die distrik Oudtshoorn tot die tagtigerjare van die 19de eeu - 'n sosio-ekonomiese studie (*Archives Yearbook*, 1988, II, p. 60); P.J. Venter : Landdros en Heemrade (*Archives Yearbook*, 1940, II). Chapter 4 of this work deals with this system in detail; J.J. Smit : Die paaie, passe en rivieroorgange in Suid-Kaapland, 1806-1858, pp. 17-25; See also section under 2.3 Attaquas Kloof for mention of the failure of this system in that district.

4 C.O. 234 Letters received : Holloway - Plasket, 14/10/1825, no. 218 (Cape Archives Depot).

2.2 The migration eastward

As the Colony took root there was the inevitable migration from the Cape into the interior. Among the general routes taken by these nomadic stock farmers, the eastern migration - along the southern coast in the 18th Century, and through the Little Karoo from the Cogmanskloof region during the same period - is of interest to this study. Most of these stock farmers kept south of the Langeberg Mountain range, the foremost of them reaching the Breede River in c.1727.⁵ The Gouritz and Great Brak Rivers were reached soon hereafter. The area to become known as Mossel Bay was slowly settled in the 1730s, the district eventually becoming part of the independent drostdy of Swellendam.⁶

As the northern migration was halted in c.1730 mainly by the resistance of various San hunting groups, and the eastern migration by the deep gorges and impenetrable forests of the southern Cape region, the migration filtered into and through the Little Karoo and Long Kloof via Cogman's Kloof, Plattekloof and Attaquas Kloof. Obviously not all farmers continued to migrate, but many settled *en route*. Thus loan farms were applied for and taken in the district that became known as Cannaland,⁷ or later,

5 J.S. Bergh and J.C. Visagie : *The Eastern Cape Frontier Zone, 1660-1980*, p. 4; A. Appel : *Die distrik Oudtshoorn tot die tagtigerjare van die 19de eeu - 'n sosio-ekonomiese studie*, p. 6; P.J. van der Merwe : *Die Trekker in die geskiedenis van die Kaap-Kolonie*, p. 200.

6 J.S. Bergh and J.C. Visagie, *op. cit.*

7 V.S. Forbes : *Pioneer Travellers of South Africa - A geographical commentary upon routes, records, observation and opinions of travellers at the Cape 1750-1800*, p. 77; A. Appel: *Die distrik Oudtshoorn*, p. 63.

the Little Karoo. The southern slopes of the Zwartberg Mountain range formed the northern extremity of this region, the Congo Valley being settled by the first white farmer in 1756.⁸ On the northern side of the Zwartberg ("onder den hoek van den Zwartberg") Zacharias de Beer had established his farm "Queekvallei".⁹ This is where the town of Prince Albert was established in the 19th Century.

The paths and routes followed by the colonists must have been those which followed the terrain and water supplies traditionally used by the indigenous Khoi and San. The Khoi used these routes with their herds and flocks while the San used them in following game and in their generally nomadic lifestyle. These indigenous groups had in turn probably followed animal tracks over routes of least topographical resistance. European explorers, hunters and pioneers thus naturally followed these "established" routes which went along trodden valley paths, through kloofs and over mountain spurs ("neks"). The topography of the Cape Colony was difficult for these pioneers, with various mountain ranges and high 'krantzes', narrow gorges and rivers presenting serious obstacles and militating against migration and settlement. Once areas were settled these same obstacles had to be overcome if markets for produce, or churches for 'nagtmaal', or drostdy for law and justice were to be visited. Areas therefore tended to become isolated pockets with time, cost and labour hindering the inhabitants from further travel. A subsistence economy and an

8 A. Appel: Die distrik Oudtshoorn, pp. 9-15.

9 V.S. Forbes: *Pioneer Travellers*, p. 59.

isolated social existence had therefore to be practised.¹⁰

2.3 Attaquas Kloof.

Situated approximately 3,7 miles (6 km) west of Robinson Pass, the road link between Mossel Bay and the Little Karoo, Attaquas Kloof (named after a Khoi group living in the area in the 17th Century) was probably the first route used to cross the Langeberg/Outeniqua range from the coastal region. Originally known as the "Lang Kloof" this name is now given to the valley into which these early travellers emerged.¹¹

Isaacq Schrijver was probably the first white explorer to use this route in 1689.¹² The crossing took him four days. For the next 129 years, until it was to a degree superseded by the Cradock Kloof Pass in 1818, it was the main and easiest natural gateway travellers used to travel to the Little Karoo, the Long Kloof and the Eastern Frontier. Records indicate that August Beutler (1752), Anders Sparrman (1772, 1775-1776), Carl Peter

10 A. Appel: Die distrik Oudtshoorn, pp. 60-64; V.S. Forbes: *Pioneer Travellers*, p. 3; T.V. Bulpin : *Discovering Southern Africa*, p. x; J. Burman : *So high the road*, pp. 1-2; J.J. Smit: Die paaie, passe en rivieroorgange in Suid-Kaapland, 1806-1858, p. 2.

11 J. Burman : *So far the horizon*, p. 73.

12 C.G. Botha : Swellendam to Mossel Bay (Motoring in South Africa, 1 February 1918). Botha is incorrect in stating that Schrijver crossed over the pass now known as the Montagu Pass; C.G. Botha : To Oudtshoorn over Robinson Pass (*Motoring in South Africa*, 1 January 1919). He is also incorrect in stating that Beutler crossed over Robinson Pass. He equates Robinson's Pass with Attaquas Kloof, which is not correct; J.J. Smit : Die paaie, passe en rivieroorgange in Suid-Kaapland, 1806-1858, p. 4. Smit also sites the Kloof incorrectly, stating it is north of the Robinson Pass.

Thunberg (1773-1774), Hendrik Swellengrebel (1776-1777), William Paterson (1777-1779), Governor van Plettenberg (1778), Jacob van Reenen (1790), Sir John Barrow (1797-1803) and C.J.F. Bunbury all used the Kloof.¹³

Towards the end of the 1770s it became increasingly difficult to maintain the Kloof "road". The responsibility for its maintenance fell mainly on the shoulders of the three families living in the area.¹⁴ The Cradock Kloof Pass which was opened in 1818 was to provide but scant relief for these travelling pioneers.¹⁵ Perhaps the words of Bunbury best sum up the condition of these early tracks : "I ached in every joint and muscle from the shaking ... (the) jolting is most severe".¹⁶

13 V.S. Forbes : *Pioneer Travellers*, pp. 30,46,77; A. Appel : *Die distrik Oudtshoorn*, pp. 12,61,90,91,92,97,101; J. Burman : *So high the road*, pp. 3,19,93-98; J. Barrow : *An account of travels into the interior of Southern Africa*, Vol.2, p. 71; V.S. Forbes (ed.) : *Anders Sparrman*, Vol.1, p. 271; C.J.F. Bunbury : *Journal of a residence at the Cape of Good Hope*, p. 103; Anon. : *Reader's Digest Illustrated Guide to Southern Africa*, p. 175; J. Burman : *The Little Karoo*, pp. 9-18; O.F. Mentzel : *A geographical and topographical description of the Cape of Good Hope*, p. 90; J. Burman : *So far the horizon*, pp. 72,73; Interview with Mr Graham Bellcross, Director of the Bartholomew Diaz Museum in Mossel Bay, 20/9/1990. Mr Bellcross has an active and lively interest in the old passes of the Southern Cape and is preparing a guide to these old passes. He also has made efforts to have Attaquas Kloof proclaimed a National Monument and has worked on a scale of difficulty for the crossing of various passes in this area.

14 A. Appel : *Die distrik Oudtshoorn*, p. 61.

15 See under 2.6.

16 C.J.F. Bunbury : *Journal of a residence at the Cape of Good Hope*, p. 94.

2.4 Plattekloof.

Lying between Tradouw's Pass and Garcia's Pass, and just northeast of Heidelberg is the old Plattekloof Pass¹⁷ used from c. 1740. This was another route migrant farmers used to Cannaland. The description of this route varied from being called a "very heavy steep rocky road" with gradients of 1:6 in places to being called a relatively easy route.¹⁸ Among the early travellers to use this route were Carl Peter Thunberg (1772-1775), Robert Gordon (1773-1774) and William Paterson (1777-1779). The Tradouw and Garcia Passes eventually superseded this route in the 19th Century.¹⁹

2.5 Caledon Kloof and Huis River Pass.

2.5.1 Caledon Kloof.

This track just west of Calitzdorp, was originally opened up by one of the inhabitants of the district, Gerrit Pretorius. Initially known as Rooielsboskloof and used extensively, it later took on the name Caledon Kloof. It linked the north western

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- 17 J.J. Smit : Die paaie, passe en rivieroorgange in Suid-Kaapland, 1806-1858, p. 4. Perhaps Smit mistakes Cogman's Kloof Pass for the old Plattekloof Pass in stating that Cogman's Kloof is north of Heidelberg. Cogman's Kloof is in fact between Swellendam and Ashton, approximately 80 km to the west. Plattekloof later became known as Gysmanshoek Pass.
 - 18 PWD 2/333 Letters Received, Miscellaneous: Particulars of certain mountain passes in the Cape Colony, December 1873 - December 1910 file (Cape Archives Depot - CAD); J. Burman: *So far the horizon*, p. 81.
 - 19 V.S. Forbes : *Pioneer Travellers of South Africa*, pp. 25,31,84,94; J.J. Smit, *Die paaie, passe en rivieroorgange in Suid-Kaapland*, p. 97; J. Burman : *The Little Karoo*, pp. 19-22; J. Burman : *So far the horizon*, p. 81; A. Appel, *Die distrik Oudtshoorn*, pp. 7,9,59,62; Interview with Mr Graham Bellcross, 20/9/1990.



2. A view of a retaining wall and cutting in the Huis River Pass.

Swellendam district with the interior and was an important gateway to the Little Karoo.²⁰

2.5.2 Huis River Pass.

This pass replaced Caledon Kloof in 1896/97. Reconstructed in the 1950s, and part of it in 1964, it serves as a good modern example of the differences in pass layout between passes of 20th Century and those constructed in the Thomas Bain era. The major difference is that Bain and other 19th Century road engineers "built up" their roads with minimum cutting while with modern equipment cutting is achieved much more easily. In the reconstruction of the Huis River Pass provision was made for the building of retaining walls against the side cut on the mountain face to catch any possible slide material in a "holding area" between the retaining wall and the slope.²¹

2.6 Cradock Kloof.

As Attaquas Kloof fell into disrepair the demand for another route to the Little Karoo and the east became more fervent. A route over the Outeniqua north of George would furthermore save 24 hours on the Attaquas Kloof Pass road. Adrian van Kervel, the new landdrost of the George district, joined those demanding that

20 A. Appel : Die distrik Oudtshoorn, pp. 62,63,92; J. Burman: *The Little Karoo*, pp. 75-76; PWD 2/46 Letters Received, Chief Inspector : T.Bain - Chief Inspector, 14/11/1885 (CAD); PWD 2/47 Letters Received, Chief Inspector : Chief Inspector - Assistant Commissioner, 23/6/1886, no. 1/296 (CAD).

21 B.A. Kantley : Slope Instability in Phyllites of the Kango Group - George - Oudtshoorn and Huis River Pass (A.B.A. Brink : *Engineering Geology of Southern Africa*, Vol.2, pp. 119-122). See also photo alongside.



3.i. A view of the old Cradock Pass, now part of a hiking trail.



3.ii. A view of the inhospitable terrain over which the Cradock Pass runs.

a new pass be built. This pass was eventually opened in 1816.²² It appears that Van Kervel did more than just agitate for a pass, for as Burman states, his enthusiasm outran his ability as a pass builder.²³

In 1838 Bunbury said of the Cradock Kloof Pass :

... the road over the Cradock's Kloof certainly deserves its reputation, being the most formidably bad, if not of all the roads I ever saw, assuredly of all that pretended to be passable by wheels. Its steepness, the ruts, or rather chasms, by which it is furrowed, the masses of rock that obstruct it can hardly be conceived by one who has not travelled beyond civilized countries of Europe.²⁴

This assessment of the route, approximately 5,6 miles (9 kms) long, favourably referred to as a pass, still holds true today.²⁵ With gradients of 1 : 4 in places,²⁶ and rock strewn,²⁷ it is quite justifiable that some wagons took two to three days to cross the kloof "pass". Wagons were frequently unloaded and taken

22 A. Appel : *Die distrik Oudtshoorn*, pp. 91,108.

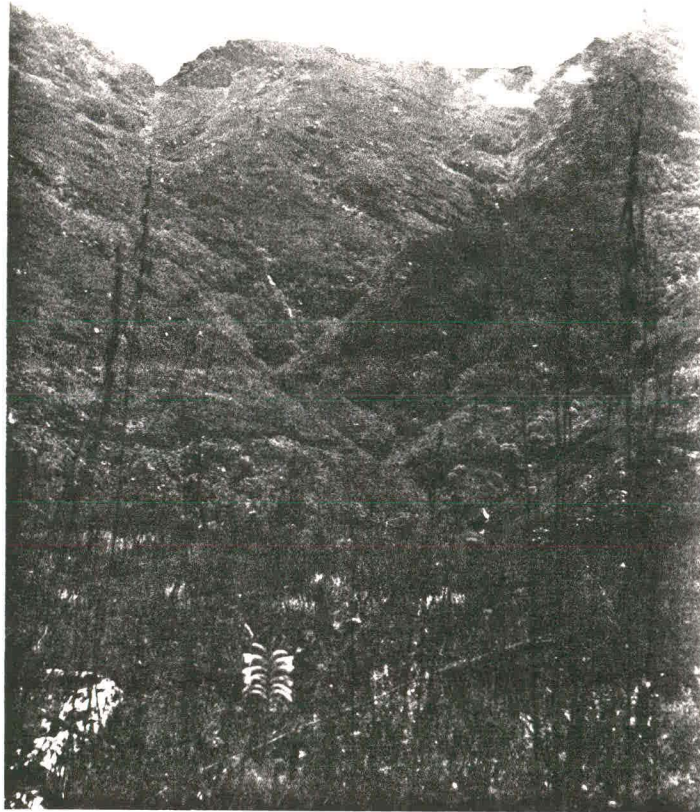
23 J. Burman : *So high the road*, p. 4; J. Burman : *The Little Karoo*, pp. 133-137; J. Burman : *So far the horizon*, pp. 84-85.

24 C.J.F. Bunbury : *Journal of a Residence at the Cape of Good Hope*, p. 176.

25 J. Burman : *The Little Karoo*, pp. 134-136. On 27/12/1991 my father-in-law and I hiked this route which is now part of the Outeniqua Hiking Trail. That it could conceivably have been used as a pass and as the main route to the Eastern Frontier bears testimony to the dauntless spirits of this country's early travellers.

26 Measured on 27/12/1991 with an abney level. The one section referred to is on the spur after crossing the first ravine and is approximately 150 meters long.

27 M.A. Newman : *Biographical Memoir of John Montagu*, p. 106.



4.i. Another view of the Outeniqua Range over which the Cradock Pass runs.



4.ii. A view of the old Cradock Pass.

up the mountain section by section: wheels, sides, yokes, luggage, etc. It took twenty to thirty oxen per wagon to move the wagon a quarter of a mile an hour, with six men with ropes and "riems" holding the wagon from falling over sideways. The sketch drawn by C. Michell of an ox-wagon crossing the Cradock Pass, which has become so well featured in South African history, portrays the tremendous exertion crossing this pass presented to earlier travellers.²⁸

Although it is difficult to categorically state which of these old routes was the most difficult to negotiate, the Cradock Kloof Pass must surely rate as one of the worst. A comparison of travellers' records will not be too helpful as one must acknowledge that each traveller holds a subjective opinion. A further factor to confound such a comparison is the fact that no one traveller used all the passes. Therefore the only real means would be to study a topographical map, measure the contours and rate the degree of difficulty of the ascent. On such a basis the Cradock Kloof Pass rates as the worst of them all.²⁹

Although a tough route, the fact that 430 wagons, 3 630 men on horseback, 3 210 cattle and 7 130 sheep and goats crossed the mountains via the pass from 13 April to 20 October 1837 bears

28 M928 (Cradock Pass), by C.C. Michell, Surveyor General (CAD).

29 Mr Graham Bellcross, Director of Bartholomew Diaz Museum has undertaken such a task. Interview on 20/9/1990.



5.i. A view of a stone pack on the old Cradock Pass.



5.ii. A painted wagon on a rock marking the route of the old Cradock Pass.

testimony to its utilization and necessity.³⁰

During the 1830s and early 1840s agitation again mounted for a route to replace Cradock Kloof.³¹

2.7 Devil's Head.

If the Cradock Kloof Pass is to be classified as the worst route early travellers had to take to cross over the mountains on their way to the east, the Devils Head Pass ("Duiwelskop") came a close second. Situated approximately 9,3 miles (15 km) east of George it appears as if this was the first pass opened from north to south. Access from the east (the Port Elizabeth side) was difficult in the extreme for early travellers because of the deep Storms River and Bloukrans gorges. Access from the west was impeded by the Kaaimans Gat. The route over Devil's Head passed over the Outeniqua from the present Berg Plaats State Forest to Schooneberg.³²

30 C.O. 2770: E. Bergh (Civil Commissioner of George) - Colonel John Bell, 20/10/1837 (CAD).

31 C.O. 2770 : E. Bergh - J. Bell, 20/10/1837 (CAD); C.O. 2794 : E. Bergh - J. Bell, 4/4/1840, no. 16 (CAD).

32 3322 DC and 3422 BA Wilderness, 3322 DD Karatara Topographical Map; Interview with Mr Graham Bellcross, 20/9/1990; Interview with Mr Gerald McCann, 18/9/1990 and 20/9/1990. Mr McCann, a former forest road builder, with practical road building experience in the Outeniqua, Langeberge, Katberg and Kogelberg Mountains, has also written a number of articles on Thomas Bain. Mr McCann is now Rev McCann, a Baptist minister in Grabouw; V.S. Forbes : *Pioneer Travellers of South Africa*, p. 147; T.B. Bulpin: *Discovering Southern Africa*, p. 175; J. Burman : *So high the road*, pp. 3,113-117; J.J. Smit : *Die paaie, passe en rivieroorgange in Suid-Kaapland*, p. 99. Here Smit makes another error in claiming that the "Duiwelskoppas" runs over the Langeberg Mountain. It runs over the Outeniqua.

C.P.Thunberg (1772-1773), Governor Van Plettenberg (1778), F. Le Vaillant (1781) and Sir John Barrow (1797-1803) all crossed the Outeniqua at this pass.³³ Barrow's description of it as being like a flight of steps, some not less than four feet high, indicates that to cross it with a wagon would have been no easy feat.³⁴ It has also been described as a "heavy steep track not fit for vehicles ... very steep and narrow".³⁵

With the opening of the Cradock Kloof Pass in 1816 the Devil's Head Pass fell into relative disuse. However, a few farmers continued to use it intermittently until the Montagu and Prince Alfred Passes superseded it to the west and east respectively.

2.8 Kaaimans Gat

Blocking off access from George to the east, this deep gorge presented travellers with a tremendous obstacle.³⁶ It was a "perilous pass" where travellers had to "descend with an

33 V.S. Forbes : *Pioneer Travellers of South Africa*, pp. 25,76,125,133,147; J. Barrow : *An account of travels into the interior of Southern Africa in the years 1797 and 1798*, p. 336.

34 *Ibid.*

35 PWD 2/333 Letters Received, Miscellaneous : *Particulars of Certain mountain Passes in the Cape Colony*, December 1873 to December 1910 file (CAD).

36 H. Lichtenstein : *Travels in Southern Africa in the Years 1803, 1804, 1805 and 1806*, pp. 233-236; J.J. Smit : *Die paaie, passe en rivieroorgange in Suid-Kaapland, 1806-1858*, pp. 2,98; C.J. Latrobe : *Journal of a visit to South Africa*, p. 150; J. Burman : *So far the horizon*, pp. 83,85,86.

abruptness almost perpendicular".³⁷

It was one of the reasons travellers used Attaquas Kloof and later the Cradock and Montagu Passes to the Little Karoo and Langkloof, although after it (Kaaibmans Gat) was passed the seemingly impenetrable Knysna forests provided the next obstacle.

2.9 Paardekop and Paardepoort

2.9.1 Paardekop

On nearly the same route as the later built Prince Alfred's Pass, the Paardekop track started at Jagersfontein near Plettenberg Bay and ran northward. Thomas Bain's Prince Alfred Pass, completed in 1867 and superseding Paardekop, joined up with this track from the Keurboom's River. Although probably not more than a bridle-path, C.P. Thunberg used this route in November 1772, H. Lichtenstein in 1805, and Latrobe in 1816.³⁸

2.9.2 Paardepoort

Not to be confused with the above mentioned track this poort was on the road between Mossel Bay and Oudtshoorn, just north of the Montagu Pass.³⁹ Another poort of the same name was on the stretch of road from Willowmore to the Aberdeen division.

37 G. Thompson : *Travels and adventures in South Africa*, Vol. 1, pp. 4-5.

38 J. Burman : *So high the road*, pp. 3,13,14,118,119; V.S. Forbes: *Pioneer Travellers of South Africa*, p. 30; G. Aschman : Mountain Pass that recalls first Duke of Edinburgh (*Cape Times*, 1967); Mr Graham Bellcross: Interview on 20/9/1990: J. Burman : *So far the horizon*, p. 83.

39 PWD 2/33 Letters Received, Chief Inspector : T. Bain - Acting Chief Inspector, 30/3/1882 (CAD).

CHAPTER 3

THE CAPE COLONY TO 1879

3.1 John Montagu and the Central Road Board.

It was clear to the new Secretary to the Government, John Montagu, who took office in April 1843, that the existing communication system and network at the Cape left much to be desired. Owing to his initiative the Central Road Board was established under Ordinance 8 of 1843 to co-ordinate road development. Six members were appointed, three of whom were Government officials. They were John Montagu (Secretary to the Government), Harry Rivers (Treasurer General), Charles Michell (Surveyor General), John Ebdon, Frederick Watermeyer and Joseph Bush, the last three being colonists. Montagu, who was appointed as chairman of the Central Road Board in addition to his other duties, sent a circular to the Civil Commissioners in July 1843 inquiring, among other things, the condition of roads, estimates of roads in need of repair, what funds the various councils had at their disposal, and what suggestions they could offer for a more effective system.¹

Of particular interest to this thesis is the call for a pass over the Zwartberg from Commissioner J. Meintjies of Beaufort West, in answer to an invitation for suggestions in the *Montagu*

111 J.J. Smit : Die paaie, passe en rivieroorgange in Suid-Kaapland, 1806-1858, pp. 202-250; J.J. Breitenbach : The development of the Secretaryship to the Government at the Cape of Good Hope under John Montagu, 1845-1852 (*Archives Yearbook for South African History*, Vol III, 1959, pp. 216-240); M.A. Newman: *Biographical Memoir of John Montagu*, pp. 155-218; CRB 1/27 : *Inventory of Central Board of Commissioners of Public Road*, Introduction (CAD).

Circular.² A second questionnaire, requesting a return of figures showing the number of convicts employed on public roads not under the Surveyor General, was then distributed (to be dealt with in chapter 4).

The duties of the Board were simply to improve and maintain roads. To this end they could elicit convict labour; appoint surveyors, engineers and clerks; and establish tolls on roads to help supplement the income that was placed at their disposal by the Government. Branch roads were to be dealt with by the Civil Commissioners establishing Divisional Road Boards.³

The Central Road Board (C.R.B.) did not escape criticism and controversy. Criticism from the Eastern section of the Colony was in fact directed at the Government before 1843 when the Government was accused of neglecting public communications.⁴ Where the C.R.B. came under further attack was in its seeming favour of the Western section of the Colony. In this instance it was accused of holding sessions at the "extreme verge of the colony".⁵ The C.R.B. was also criticized for not properly

2 J.J. Smit : *Die paaie, passe en rivieroorgange in Suid-Kaapland*, p. 205; J.J. Breitenbach : *The development of the Secretaryship to the Government at the Cape of Good Hope*, p. 233.

3 CRB 1/27 : *Inventory of Central Board of Commissioners of Public Road*, Introduction (CAD).

4 *Grahamstown Journal*, 3/3/1842.

5 *Grahamstown Journal*, 8/1/1844; J.J. Smit, *Die paaie, passe en rivieroorgange in Suid-Kaapland*, pp. 242-249; J.J. Breitenbach, *The development of the Secretaryship to the Government at the Cape of Good Hope*, pp. 237-239, 243-244;

attending to Howison's Poort, for being autocratic and for giving priority to Cradock Kloof (later to be named the Montagu Pass).⁶ Clearly, the flame of the separatist ideal was still burning. The controversy surrounding the unsound management of finances was ultimately the death knell of the C.R.B., with Act 9 of 1858 replacing Ordinance 8 of 1843.⁷ The C.R.B. was disbanded and from 1 January 1859 three paid Commissioners, appointed by the Government, took charge of main roads. The management of convicts was to be placed under the governor.⁸

The C.R.B. had been run by six unpaid officials who were all involved elsewhere. Notwithstanding criticism, they were probably correct to start their work at the "point of greatest physical and geographical resistance"⁹ and to seek to overcome the route to the Eastern frontier first. Once John Montagu departed it was felt that "the soul of the Board [had] departed".¹⁰ Nevertheless, significant road development had taken place¹¹ under direction of the C.R.B. and the road development of the colony was placed on

The Colonist, 23/7/1853.

6 *Grahamstown Journal*, 18/1/1844.

7 "An Act for the management of the Public Roads of the Colony".

8 J.J. Smit : *Die paaie, passe en rivieroorgange van Suid-Kaapland*, pp. 244-249.

9 J.J. Breitenbach : *The development of the Secretaryship*, p. 244.

10 *Cape Monitor*, 14/5/1856.

11 BPb/59 - Crail Cards : *Annual Reports of the Central Board of Commissioners for Public Roads in the Cape Colony : 1844-58 Reports* (SA Library - SAL).



6. Thomas Charles John Bain.

a more sound and systematic foundation.

3.2 Andrew Geddes and Thomas Charles John Bain

3.2.1 Andrew Geddes Bain

Thomas Bain's father, Andrew Geddes, hardly needs an introduction. Born in Thurso, Scotland in 1797 and emigrating to the Cape Colony in 1816 he made a significant contribution to the development of the social and economic lifestyle of the Cape colonist. His checkered career included activities of trading, exploring, soldiering and road engineering. He was also a geologist of repute.¹² It is, in fact, partly due to this all-round contribution that his son, Thomas, has lived in his shadow. Testimony to this is borne out on the plaque mounted at the summit of the Zwartberg Pass where Thomas is introduced as "son of Andrew Geddes Bain", a phrase and sentiment duplicated in many articles.

3.2.2 Thomas Charles John Bain

Credit for road building and development in the Cape in the 19th Century has generally been given to the "triumvirate" of John Montagu, Charles Michell and Andrew Bain. In fact, Thomas Bain eclipsed the engineering work done by his father¹³, devoting his

12 M.H. Lister (ed): *Journals of Andrew Geddes Bain - Trader, Explorer, Soldier, Proud Engineer and Geologist*, pp. XI-XXXV; J. Burman : *So High the Road*, pp. 10-12; W.J. De Kock (ed): *Dictionary of South African Biography, Vol I*, pp. 35-38; A. Matthews: Mountains of men (*The Argus*, 1 July 1984); J. Bond: *They were South Africans*, pp. 110-116.

13 See Appendix 4 for the list of passes built by T.C.J. Bain and A.G. Bain; J. Fourie : Wie was Andrew en Thomas Bain? (*Custos*, September 1992, p. 17).

entire life to the profession, while the contribution of Andrew Geddes, very significant in its own right, spanned a period of just over two and a half decades.

Thus it is Thomas who, by the sheer volume of the work he completed and by the skills and talents he channeled into civil engineering projects, should be accorded his due as the premier civil engineer of the 19th Century South Africa. Andrew Geddes Bain, "father of Thomas Bain", nonetheless bred a prominent stock of engineers reaching down a number of generations. The Bain, Bromley and Nisbet families are cases in point.

Thomas Bain was born on 29 September 1830 in Graaff Reinet. Very little is known of his childhood and schooling. It appears most probable that he was educated in the main by his parents, as his father was busy on military roads during the years in which his schooling would have taken place. From the time that he was a youngster aged six, he was "on site" with his father who worked on military roads between 1836 and 1845. Thomas's formal training started in April 1848 when he was appointed learner-assistant to his father on Michell's Pass. In 1854 he finished top of the five students who sat for the Civil Engineering examination prepared for them by both the Colonial Engineer Lt.-Colonel Charles Michell, and the Cape Superintendent-General of Education. Two of the five passed. In 1855 he married Johanna Hermina de Smidt, daughter of W.A.J. de Smidt, the Central Road Board's Secretary at the time. Together they had twelve children. Besides the roads and passes built by him, Thomas Bain was also

more than just an amateur geologist.¹⁴ He was also the Superintendent of Convicts at the Breede River Station in Bain's Kloof, a position taken so he could become conversant with the workings of the new system. In January 1854 he was appointed Inspector of Roads. He also held various other positions of authority over the years, being appointed Visiting Magistrate at Grey's Pass, Knysna and George, as well as being appointed as a Justice of the Peace for the Western Province. He also held the position of member of local immigration and harbour boards.

In 1873 he was appointed District Engineer with the Railway Department for eighteen months. However, he soon returned to his first love, roads. In 1877 he was accorded honour in being appointed Associate Member of the Institute of Civil Engineers (AMICE). In 1888 he was transferred from the Public Works Department and took up the position of Irrigation and Geological Surveyor, a position he held until his death in 1893.¹⁵ He was a keen botanist and discovered four new stapelia. He also had a plant, the "Hoodia bainii" named after him. Besides all this he was known to be a good artist and musician.¹⁶

14 A bibliography of his works is included in Appendix 5.

15 CCP 11/4/1 *Civil Service List 1885*, p. 81 (CAD); W.J. de Kock (ed): *Dictionary of South African Biography*, Vol I, pp. 39-41; BC 543 Jagger Documents Library, U.C.T. : T. Bain - Record of Service, 10/5/1893: P. Storrar : *A Colossus of Roads*, pp. 13-19, 29-103; *Oudtshoorn Courant*, 5/10/1893 (The late Mr Thomas Bain).

16 G. Lister : *Reminiscences of Georgina Lister*, pp. 2 & 21 ; P. Storrar: *A Colossus of Roads*, p. 19.

Thomas Bain travelled a lot. Testimony to this is the fact that during 1879 and 1880 he was away from home for 163 days. During 1879 Bain drew allowances for the use of a cart and horses, to the value of twice the amount he had been officially allocated.¹⁷

The reason for this excess was that Bain travelled a lot, many of his journeys being over rough terrain. His area of jurisdiction, the Western Province from Cape Town to near Humansdorp was, in addition, equal to three times that of any other road inspector. The subject of Bain's allowances and the number of horses he used became a controversial issue: he used four horses instead of two. Eventually the issue of Bain's salary and allowances was settled.¹⁸

Bain was not infallible. This is evident during the time of the construction of Garcia' Pass where he was questioned on how he arrived at his estimates, was censured for the "loose framing of costs" and left his superiors wondering how he could justify viaducts twenty feet in height on so minor a work!¹⁹ It appears

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- 17 PWD 2/422 Letters Despatched, Chief Inspector : Commissioner - Chief Inspector, 2/8/1880 (CAD).
 - 18 PWD 1/591 Letters Despatched, Secretary : J. Fforde - Commissioner of Crown Lands, 26/1/1881, pp. 420, 516; PWD 1/589 Letters Despatched, Secretary : J. Fforde - Commissioner of Crown Lands, p. 660; PWD 1/590 Letters Despatched, Secretary : J. Fforde - Commissioner of Crown Lands, 17/7/1881, pp. 579-582 (CAD); For a description of Bain's salary and allowances see Appendix 2.
 - 19 PWD 1/235 Letters Received, Secretary : Commissioner - Chief Inspector, 31/3/1876; PWD 1/585 Letters Despatched, Secretary : Chief Inspector - Commissioner, 1/2/1877, pp. 339-340; PWD 1/239 Letters Received : Commissioner - Chief Inspector, 24/1/1877 (CAD).

that in this Bain may have 'blotted his copybook', putting pay to any ideas he had about becoming the next Chief Inspector of Public Works, for this is a position he aspired to on M. Robinson's retirement.²⁰ Bain was also criticised for not finding time to take proper sections with a spirit level and for not drawing plans to scale.²¹ In 1885 he was censured for communicating with the office of the Commissioner of Crown Lands and Public Works without first informing the Chief Inspector, William Grier, of this correspondence.²² However, these are most probably the only "blemishes" on an otherwise outstanding career.

Bain was a colourful man and one not easily taken for a ride. Both Gert and Philip Koen found this out to their detriment. Whether the Koen's were related or not is not evident, but both tried to receive reward money for alleged coal finds. Bain saw through the schemes: neither received any reward money, and the latter Koen was made to walk a 72-mile (115,8 km) return trip to Prince Albert by Thomas Bain. Bain also had a sense of humour similar to that of his father. Both Bains fooled gullible

20 PWD 1/584 Letters Despatched, Secretary : M.N. Robinson - J.X. Merriman, 8/7/1876, p. 348 (CAD).

21 PWD 1/241 Letters Received, Secretary : John Gamble (hydraulics engineer) - Commissioner, 2/7/1877 (CAD).

22 PWD 1/551 Letters Despatched, General Series : W. Grier - T. Bain, 9/11/1885, p. 458; PWD 1/293 Letters received, Road and Building Works Officials : W. Grier - T. Bain, 21/11/1885; PWD 1/293 Letters Received, Road and Building Works Officials : T. Bain - Chief Inspector, 17/11/1885 (CAD).

farmers that finds they made were relics from Noah's Ark.²³

Given the amount of travelling he undertook and the ardours of civil engineering in those days, it was not surprising that Bain's health eventually gave in. The fact that he had only one month's leave in forty five years of service (1848-1893) bears testimony not only to his dedication, but also to the shabby treatment meted out to him by the Government Departments he worked under (from the Central Roads Board, the Public Works Department, the Office of the Minister of Crown Lands to the Office of the Treasurer-General). On medical advice Bain asked for three months' leave, but this was granted under such 'conditions' that he declined the offer.²⁴ Here, too, he must have had memories of not being able to visit a dying father in 1863. Other occurrences, like the transfer of his Irrigation and Surveying Department from the Office of the Minister of Crown Lands to that of the Treasurer-General, and certain changes made to his department (against his advice) which led to disorganization, must have all had their detrimental affect. He died on his birthday in 1893. Professor H.G. Seeley's condolences to Mrs Bain on 27 October 1893 provide a fitting epitaph: "... a life given ungrudgingly for the advancement of the material welfare of the people of the Colony."²⁵

23 Dr W.G. Atherstone : From Grahamstown to the Gough (*Selected Articles from the Cape Monthly Magazine - New Series 1870-76*, p. 91); A.G. Bain : *Geology of South Africa* (Jagger Documents Library, UCT : BC 543 11(b)), p. 10.

24 *Oudtshoorn Courant*, 5/10/1893.

25 BC 543 - Jagger Documents Library U.C.T. : H.G. Seeley to Mrs Bain, 27 October 1893; *Ibid*.



7.i. A view of the old toll house on the Montagu Pass with the Outeniqua Pass in the background.



7.ii. A view of the Montagu Pass winding up the Outeniqua Mountains.

3.3 Montagu Pass - The route to the Eastern Frontier.

The C.R.B. deemed the twenty-four-mile-stretch of sandy Cape Flats and a route over Cradock Kloof as being the most urgent priorities to be tackled in their new road development programme.²⁶ After all, these were obstacles en route to the Eastern Frontier. Notwithstanding criticism, the Board successfully managed to have the road over Cradock Kloof completed and opened by 19 January 1848.²⁷

As Cradock Kloof became more difficult and dangerous to negotiate and the call for a new route became more frequently heard, Dr William Stanger became the man tasked with surveying the new route to the east, while Henry Fancourt White was to see to the construction of the new pass using convict labour.²⁸ The Montagu Pass, as the new Cradock Kloof road became known, was one of the first passes in the Cape to be macadamized.²⁹ It was between 1800

26 J.J. Breitenbach : The development of the Secretaryship to the Government at the Cape of Good Hope, pp. 239-244; BPb/59 in Crail Cards : *First Report of the Central Road Board for the year 1844*, p. 1 (SAL).

27 BPb/59 in Crail Cards : *Fourth Report of the Central Road Board* (SAL). The date given here for the opening is 19 January 1848. The date on the plaque on the Outeniqua Pass overlooking the Montagu Pass is 1847.

28 A. Appel : Die distrik Oudtshoorn, p. 91; H.A. Chilvers : *The Seven Wonders of Southern Africa*, p. 227; J. Burman : *So high the road*, pp. 9,104-108; J. Burman : *The Little Karoo*, pp. 138-140; M. Leigh : *Journey in South Africa*, p. 63; M.A. Newman : *Biographical Memoir of John Montagu*, pp. 170-174; PWD 2/333 Letters Received, Miscellaneous : *Particulars of Certain Mountain Passes in the Cape Colony*, December 1873 - December 1910 file (CAD).

29 A. 23-79 Select Committee Report on Oudtshoorn Road contribution, August 1879, p. 20 (CAD); J.P.M. Pannell : *An Illustrated History of Civil Engineering*, Time chart in



8. A view of the various routes crossing the Outeniqua : the railway crossing in the foreground, the Montagu Pass in the middle, and the Outeniqua Pass in the background.

and 1850 that the Mc Adamized road started being used in England. Therefore, the Montagu Pass in the Cape Colony, and the "hard road" over the sandy Cape flats, would have been the first two South African roads to have benefitted by this method.

The Montagu Pass needed constant inspection and frequent maintenance. With gradients of 1 : 6 in places it sustained serious damage to its southern slope whenever it rained and the culverts were choked up.³⁰ Nevertheless the Montagu Pass remained in use for the next century before being replaced by the Outeniqua Pass in the mid-20th Century (20 September 1951).³¹ It, in fact, still stands in good condition for the motorist wishing to recall the past.

The advantages derived from the Montagu Pass were great. Besides saving travellers from the rigours of crossing the Outeniqua via Cradock Kloof, the new route cut the time spent in crossing the range by some sixteen to twenty hours (or approximately two days by ox wagon). The new route could then be crossed in approximately four hours.³² In addition, the number of draught animals pulling the wagons was reduced, the markets of George and

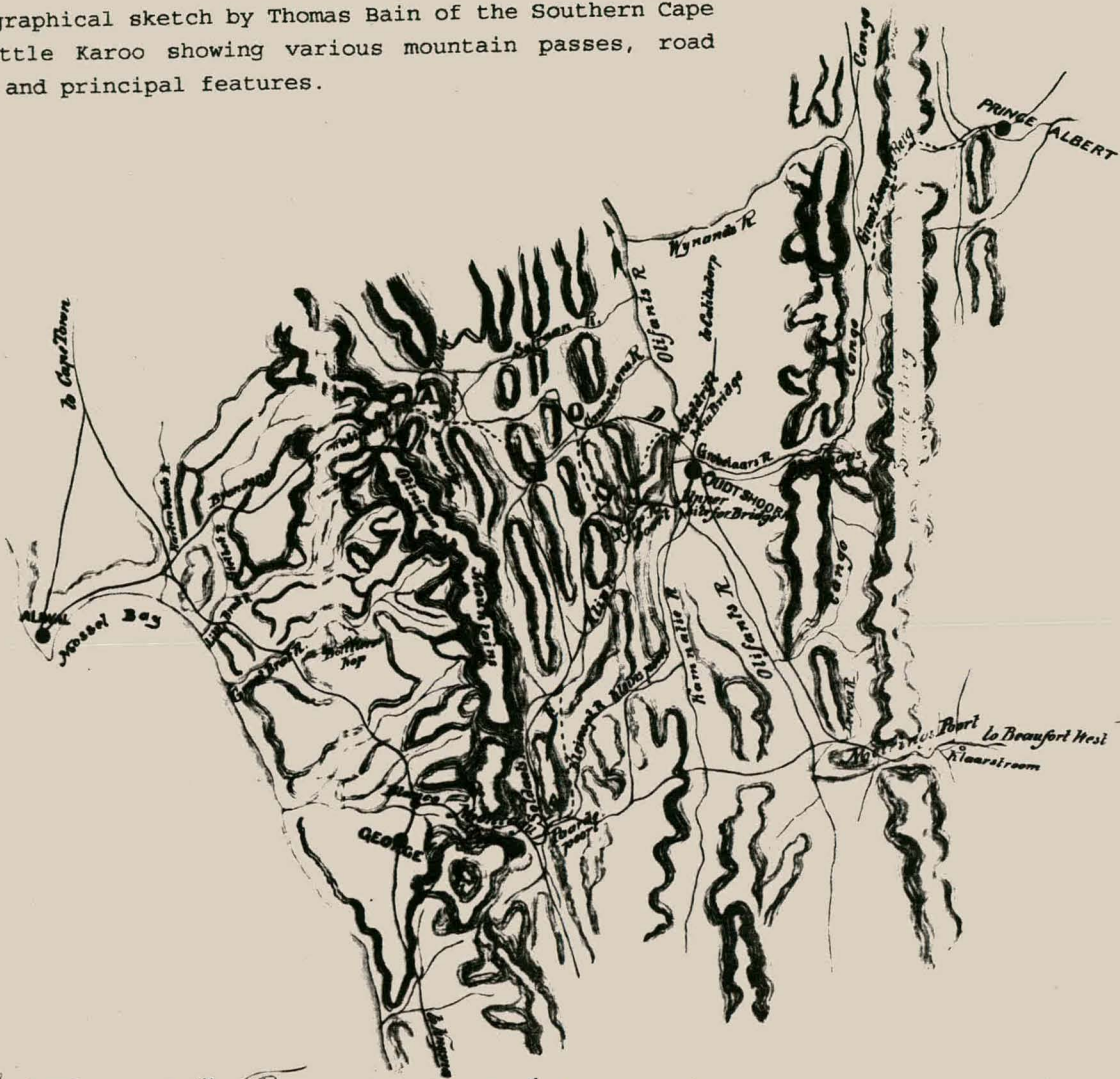
Preface; J. Pannell : *op. cit.*, pp. 37 and 41 deal with the change from Thomas Telford's method to Mc Adam's principle.

30 A. 23-79 Select Committee report on Oudtshoorn Road contribution, Appendix F, p. ii (CAD).

31 A. Appel : Die distrik Oudtshoorn, p. 92; J. Burman : *So high the road*, pp. 102, 103.

32 J.W. Grill : *J.F. Victorin's Travels in the Cape*, p. 104.

A topographical sketch by Thomas Bain of the Southern Cape and Little Karoo showing various mountain passes, road routes and principal features.



In positions of the Town, no principal features of the above map are taken from the
 1901 General map of the Colony enlarged. The roads and other detail are taken from my field
 notes taken while on surveys and inspections. Mossel Bay is the natural sea port and trading place.
 The distance from it to Oudshoorn via Montagu forest roads port is 69 miles. That via Trosdome
 is 84 miles showing a saving of 15 miles in favor of the latter, and the road is much lighter in gradients
 contemplated to shorten it by 5 miles more via dotted line A to B already cut off and measured which will show
 a saving of 20 miles in favor of the proposed road. These facts being established, and 'Hyl. drift' being a good
 road in the direct line of road it was chosen and fixed upon as the best route.
 That site, however, does not suit the George people so well, because - from the present road - they are more
 exposed from access to 'Hyl. drift' is a conglomerate face of fully 600 yds long which intervenes, where
 it will be almost impossible to cut a road through, but by the adoption of what is known as the 'solidat.
 line - one plan - which is a more direct road, and thence by the dotted line C D now in contemplation
 greatly can be overcome without any serious drawback. Indeed, I consider that that route will be
 what shorter, especially if a further improvement via the dotted line E to F is also made. These im-
 provements together, will not amount to as much to construct as the necessary alterations would to divert
 local stage traffic from Lantelans (the O to O), and thence down the Elgin River port (a difficult piece
 of) to the upper site, which besides its port, would be a convenient route.
 Lantelans River which has to be crossed in approaching the 'Hyl. drift' site does not drain a
 basin, than the Kingsport River does down it, which intervenes in approaching the upper site and would have to be crossed.
 is no argument against 'Hyl. drift'. I believe that currents are more readily produced on the
 as far as long than on the other, simply because a number of them are settled on the grassy plains
 near George, where they used to make a good living by transport from Mossel Bay to Beaufort
 but the Railway having now superseded them of that work they are almost compelled to con-
 tinue with them on the other line to get employment.

Chief Inspector
 of Public Works
 Cape Town
 (Sd) Thos. Bain,
 Dist. Eng. 2/2 82.

Mossel Bay benefited, and general economic benefits accrued.³³ In fact, for the years 1874 to 1878 an average of £285 was collected in toll fees from the utilization of the pass.³⁴ In comparison to other passes Montagu Pass came out very favourably. In 1864, for example, £353 was collected from the Montagu Toll in comparison with £247 collected from the Sir Lowry's Pass Toll and £50 collected from the Meiring's Poort Toll.³⁵ If one further compares the above figures with the £100 average collected for any of the best five years from the later-built Zwartberg Pass Toll³⁶ one can appreciate that the Montagu Pass was justifiably viewed as a priority work by the C.R.B.

All in all a great work was completed.

3.4 Cango Poort

The colonization of the fertile approximately 80,7 mile (130 km) long and approximately 9,9 mile (16 km) wide Cango Valley in the Little Karoo on the southern foot of the Zwartberg Mountain range took place in the later 18th and early 19th Centuries.³⁷ Routes in and out of the valley for the farmers and their produce

33 J.J. Breitenbach : The development of the Secretaryship, p. 242.

34 A. 23-'79 Select Committee Report on Oudtshoorn contribution, Appendix C (CAD).

35 A. 73-'65 Return showing the various tolls established in the Eastern and Western Province of the Colony, p. 2 (CAD).

36 Discussed in 7.2.

37 J. Burman : *The Little Karoo*, p. 80.



Explosive Mining Road built original
conditions \$12000.00
To make a low level Road around through it 2000.00
A.B. felt the above would be liable to be
destroyed by floods.
To construct a permanent road through
low water pool would cost \$5500.00
To construct a low level road through it
on basis of permanent pond would not about 800.00
Explosive conditions. Road would cost \$200.00

N.B. By correct taking the above 3 estimates
would be reduced by low floods
(Sept 17/10)
Jed then then
28.6.25

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included Potgieter's Poort, Coetzee's Poort and Cango Poort.³⁸ Surveys on the approximately 4,9 mile (8 km) poort route were undertaken in 1860 and again in 1881.³⁹ The former date saw the route put into some semblance of respectability, the latter the beginning of the Schoeman's Poort road (discussed in chapter 6.4).

3.5 Meiring's Poort

From 1845 a number of Divisional Councils, namely, Colesberg, Swellendam, Beaufort West and George began agitating for a line of communication between the Beaufort Division and the coastal region. However, the major obstacle to overcome was the Zwartberg Mountain range.⁴⁰

The Select Committee commissioned to consider the opening of Meiring's Poort agreed that a route through the poort would be advantageous to the central area of the colony, that a good "boer road" could be made for £4 000 to £5 000, and that a survey be

38 CCP 1/2/2/1/3 Select Committee Report to consider the opening of Meirings Poort, May 1856, p. 9 (CAD); South Africa 1 : 125 000 Geological Survey Map, 3321B Gamkapoort and 3322A Prince Albert (inclusive), 1965.

39 G. 21-'61 Report by A.G. de Smit on the Cango Poort Survey, 23/2/1860, p. 11 (CAD); *Oudtshoorn Courant*, 31/5/1881.

40 J.J. Smit : Die paaie, passe en rivieroorgange in Suid-Kaapland, 1806-1858, p. 279; RBG 1 in Crail Cards : E. Morris - Secretary of Divisional Road Board, Beaufort, 25/3/1845 (SAL); *Ibid.*, 17 March and 21 April 1846; Annual Reports of the Central Board of Commissioners for Public Roads, July 1854, pp. 41-42 (SAL).

made.⁴¹ Mr Woodifield was tasked with conducting the survey. Messrs A.G. de Smidt, A.G. Bain and later, Thomas Bain also became involved with surveying and supervising the construction of this route. The C.R.B. gave Mr T. Mellville instructions to build the road.⁴² It became clear, however, that his grandiose ideas were not in line with what the C.R.B. envisaged and that he was unable to cut the cloak according to the cloth he was allocated.⁴³ The route was opened in 1848 and credit should be accorded to Messrs de Smidt, A.G. Bain and T. Bain for their supervisory and superintending roles.⁴⁴

The use of convicts certainly spread the burden in the construction of Meiring's Poort.⁴⁵ However, the complaints of certain labourers against the method in which they were paid⁴⁶ must surely have been a warning to the C.R.B. and other authorities that this system of convict labour needed close

41 CCP 1/2/2/1/3 Select Committee Report to consider opening of Meiring's Poort, May 1856, p. iii (CAD).

42 J.J. Smit : Die paaie, passe en rivieroorgange in Suid-Kaapland, p. 281; G. 22-'57 Annual Report of the Central Board of Commissioners for Public Roads for the year 1856, p. 9 (CAD).

43 G. 22-'57 Annual Report of the Central Board of Commissioners for Public Roads for the year 1856, pp. 70-76 (CAD).

44 G. 22-'57 Annual Report of the Central Board of Commissioners for Public Roads for the year 1856, pp. 9 and 83 (CAD).

45 CCP 1/2/2/1/3 : Select Committee report to consider opening of Meiring's Poort, May 1856, pp. 2-7 (CAD).

46 CCP 1/2/2/1/4 Report of the Select Committee appointed to investigate the evidence on the complaints of certain labourers at Meiring's Poort, June 1857, p. iii (CAD).

supervision. The labourers were allegedly paid "by goods, petty installments, and security".⁴⁷ A similar problem occurred on the Zwartberg Pass when John Tassie was involved with the initial stages of building the pass. He paid his labourers on an similar basis. Moreover, the similarity runs closer in that in the Meiring's Poort situation it was found that the inquiry into the complaints was conducted by the clerk to the Civil Commissioner of the area, the clerk being the Sub-Inspector of Works' brother-in-law. A taint of nepotism also coloured John Tassie and his in-laws (discussed in chapter 5).

The Meiring's Poort road was the first adequate northern exit to the inhabitants of the Little Karoo. It was therefore a tremendous asset to this region for at least twenty five years, i.e. 1848-1883. The poort was of general value to the Little and Great Karoos, but of specific value to Mossel Bay, George, Oudtshoorn, Prince Albert and Beaufort West.⁴⁸ Those areas to which Meiring's Poort was perhaps of slightly less value, but nonetheless important, included Victoria West, Richmond, Burghersdorp, Willowmore, Frazerburg, Graaff-Reinet, and even the Orange Free State and Transvaal.⁴⁹ Wools, skins and agricultural produce in general formed the bulk of the freight conveyed

47 *Ibid.*

48 A. 15-'86 Select Committee Report on the maintenance of Meiring's Poort, pp. 12-13 (CAD).

49 A. 15-'86 Select Committee Report on the maintenance of Meiring's Poort, pp. 2,12-13; CCP 1/2/2/1/3 Select Committee Report to consider the opening of Meiring's Poort, May 1856, p. 10; A. 8-'81 Select Committee Report on the Beaufort West Road contribution, April 1881, pp. vii-xii (CAD).

through the Poort.

The traffic through Meiring's Poort helped create the villages of Klaarstroom and De Rust, the former on the northern side of the Zwartberg and the latter on the southern side.⁵⁰ Klaarstroom was established on Mr Marincowitz's property and De Rust on Mr Meiring's property. Both gentlemen were reported by Mr A.G. Bain to be very hospitable.⁵¹

When Meiring's Poort was impassable due to flooding, trade in the region was detrimentally affected. The story of a merchant trying to send a load of sugar to Prince Albert and being away for six weeks without successfully delivering his load, stands out as an example.⁵²

The opening up of this link also had its negative effects: this is apparent in the potential danger it posed for the spread of animal sicknesses to different parts of the colony. It was feared that the "Australian bug" would spread via the poort and affect the livestock of the Little Karoo.⁵³ In 1906 quarantine

50 *Oudtshoorn Courant*, 9/5/1882.

51 G. 22-'57 Annual Report of the Central Board of Commissioners for Public Roads for the year 1856, pp. 76-79 (CAD).

52 *Mossel Bay Advertiser*, 8/7/1885 (Public Meeting on the Meiring's Poort Road).

53 *Beaufort Courier*, 8/6/1886 (Letter from District Surgeon).

regulations were enforced against cattle using the poort,⁵⁴ and this, in turn, led to a reduction in traffic.

The development of railway communications in general and the opening of the railway line to Beaufort West in particular saw a decrease in the usage of the poort.⁵⁵ The toll fees collected at the poort had been averaging £300 per annum up to 1885.⁵⁶ That the toll was let for an average of £62 per annum between 1894 and 1905, dropping from £125 in 1894 to £20 in 1905, tells a tale of its own.⁵⁷

Meiring's Poort was flood susceptible. Between 1848 and 1885 the poort was damaged and rendered impassable on three different

54 PWD 2/5/368, Prince Albert Meiring's Poort Pass : Division Engineer - Chief Inspector, 14/7/1906, no. 42/163 (CAD).

55 A. 15-'86 Select Committee Report on the maintenance of Meiring's Poort, p. 10 and Appendix A, p. i; A. 22-'80 Select Committee Report on Beaufort West Road Contribution, July 1880, pp. 3-6; *Oudtshoorn Courant*, 24/4/1883 (Beaufort West Divisional Council Meeting); PWD 2/5/368, Prince Albert Meiring's Poort Pass: W.Dickenson - Engineer-in-Chief, 31/3/1906, no. 41/78 (CAD).

56 A. 22-'80 Select Committee Report on the Beaufort West Road Contribution, July 1880, p. 12; A. 10-'85 Report by Inspector T.Bain upon the destruction of Meiring's Poort, and the best means of opening a pass across the Zwartebergen, 22 June 1885, p. 8; A. 73-'65 Return showing the various tolls established in the Eastern and Western Provinces of the Colony, p. 2 (CAD). (in 1864 only £50 was collected.)

57 A. 10-'85 Report by Inspector T. Bain upon the destruction of Meiring's Poort, and the best means of opening a pass across the Zwartebergen, 22 June 1885, p. 2 (CAD); *Oudtshoorn Courant*, 18/4/1882 (Correspondent's report); *Mossel Bay Advertiser*, 8/7/1885 (Public Meeting on Meiring's Poort Road).

major, and numerous other minor occasions.⁵⁸

The severe flooding of Meiring's Poort in 1885, unlike the other floods, afforded an opportunity for a re-evaluation of the route where its value was weighed up against the gains railway development was making. It also afforded the divisions of Beaufort West and Prince Albert an opportunity to attempt to discharge their maintenance contributions on the road.⁵⁹ The contention of the petitioners from Beaufort West was that they seldom used the route as a result of the railway line to their area, and that, in addition, they had to maintain two other mountain passes as feeders to railway lines. Prince Albert, on the other hand, was eagerly awaiting the opening of the Zwartberg Pass and was therefore not keen to have Meiring's Poort re-opened (discussed in chapter 5). Meiring's Poort was, however, not necessarily the "victim" of the 1885 floods, as sooner or later its value in the light of the development of railways would bring it under the spotlight. Fortunately for the inhabitants of the region, the furoré the possible closure of Meiring's Poort unleashed was taken cognisance of, and the Poort was reconstructed.⁶⁰ (Discussed in chapter 5.)

58 A. 10-'85 Report by Inspector T. Bain upon the destruction of Meiring's poort, and the best means of opening a pass across the Zwarteborgen, 22 June 1885, p. 2 (CAD); *Oudtshoorn Courant*, 18/4/1882 (Correspondent's report); *Mossel Bay Advertiser*, 8/7/1885 (Public Meeting on Meiring's Poort Road).

59 *Beaufort Courier*, 21/7/1885 (Meiringspoort - report of petition).

60 A. 10-'85 Report by Inspector T. Bain upon the destruction of Meiring's Poort, and the best means of opening a pass across the Zwarteborgen, 22 June 1885, p. 2; *Oudtshoorn*

The attempt to have the road raised to avoid future flood damage was not successful due mainly to the anticipated railway link-up to the area. It was argued that the estimated £60 000 to £90 000 needed for its construction would not be justified.⁶¹ The toll returns, as discussed above, validated this view.

In the second half of the 20th Century the road took on a new and strategic importance for the districts of Mossel Bay and Oudtshoorn and the demand was made for it to be classified as a special road.⁶² The investigation to have a series of tunnels burrowed through the Zwartberg range⁶³ also illustrated a renewed interest in the region against the wider perspective of the comprehensive road development which took place in the middle decades of the 20th Century. The tunnels were not constructed, but between 1966 and 1971 the road was tarred and significantly improved,⁶⁴ enough to provide the modern motorist with an unforgettably scenic drive.

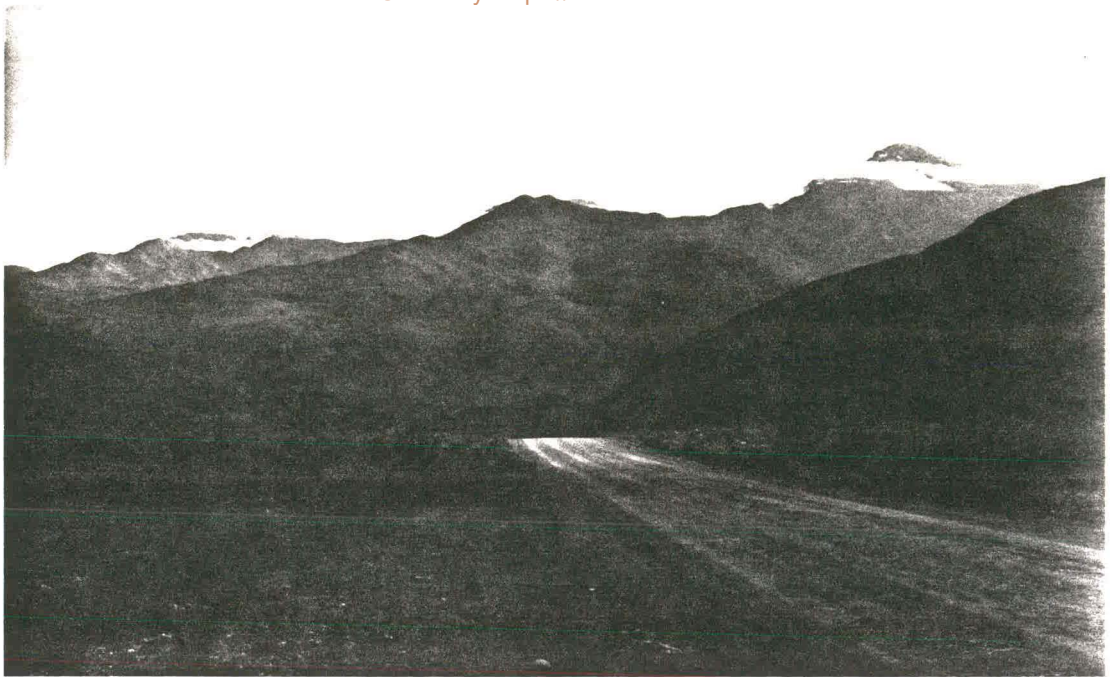
Courant, 2, 13 and 30/7/1885.

61 PWD 2/5/365 Meiring's Poort Road : PWD - Secretary of Prince Albert DC, 31/5/1894; R.Bromley - Chief Inspector, 5/7/1889; A. 2-'90 Report and estimate by Mr Robert Bromley for the construction of a road through Meiring's Poort, 9/7/1889; PWD 2/732 Memoranda Despatched : W.Grier - Parliament, 10/7/1889.

62 *Oudtshoorn Courant*, 5/3/1958 (Meiringspoort Centenary).

63 H. Marincowitz : *Meiringspoort - Scenic gorge in the Swartberg*, p. 11.

64 *Ibid.*, pp. 11-12.



11. Two views of the road to Seven Weeks Poort.

3.6 Seven Weeks Poort.

After 1845 the agitation for a communication link over the Zwartberg brought to the fore various suggestions for alternative routes.⁶⁵ After John Montagu visited the area in 1849 interest became focused on Seven Weeks Poort. The poort was a 17-kilometer defile in the "Little Zwartberg"⁶⁶ range and was used as a route to the north by Little Karoo and Overberg farmers. A road through the poort would reduce a four-to-six-day journey to three hours.⁶⁷ However, the inhabitants of Swellendam did not favour a route through the poort as they wanted the Tradouw Pass in the Langeberg to be opened as this would direct produce through their town.⁶⁸

Various inspections were made of the alternative routes in the early 1850s,⁶⁹ and it was decided that Meiring's Poort should be the first to receive attention. After Meiring's Poort was opened

65 A. Appel: Die distrik Oudtshoorn, pp. 204-205; C.O. 4044 Memorials received, A-B : R.H. Allen, 1/9/1849, no.31; C.O. 4110 Memorials received, M-P: T. Moodie, 30/4/1859, no.51 (CAD).

66 PWD 2/333 Letters Received, Miscellaneous : Particulars of certain mountain passes in the Cape Colony, December 1873 - December 1910 (CAD); S. van Waart : *Good Morning South Africa TV interview*, 7/11/1991. She claimed that the Zwartberg was not divided into the Little and Great Zwartberg!

67 J. Wilson : A changing rural economy and its implications for the Overberg, 1838-1872, p. 88; J. Breitenbach: The development of the Secretaryship, p. 245; BPb/59 in Crail Cards (SAL); Sixth Report of the Central Road Board, 10 April 1850, p. 52 (SAL).

68 J. Wilson: A changing rural economy, p. 89.

69 RBG 1 : Reports of 28 December 1853 and 7 March, 1855, A.G. Bain (SAL).



12. Two views of the road through Seven Weeks Poort.

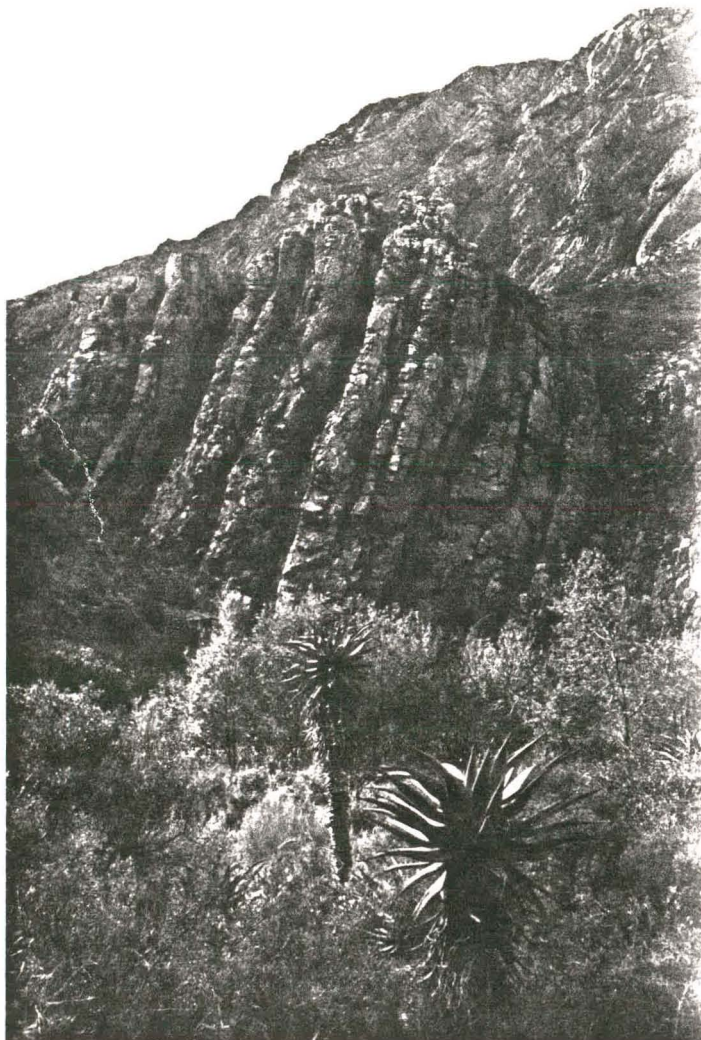
in 1858 there was still agitation for a road through Seven Weeks Poort.⁷⁰ Work on the road began. After operations were taken over in 1860 by Mr A.G. de Smidt, the construction took direction and the road was opened in 1862.

The name "Seven Weeks" ('Seweweek') was probably a corruption of the name of the missionary, Louis Zerwick, who was reputed to have been the first person to travel through the poort. However, a number of other explanations concerning the name are also advanced: (i) that the Cape authorities escorted a group of murderers and thieves through the poort with the aid of a mounted commando and the journey took seven weeks; (ii) that a farmer who got lost took seven weeks to find his way through the poort; (iii) that a stock thief hid in the poort for seven weeks before being caught; (iv) that criminals using wagons to smuggle brandy from the Cape to the interior used the poort on the way to Beaufort West in order to escape revenue officers and the journey took seven weeks; (v) that the everlasting flower, known as "seweweeks" or "sewejaartjies", flourishes in the region.⁷¹

Like Meiring's Poort, Seven Weeks Poort was not the full answer to the question of an adequate communication link over the Zwartberg. The road through Seven Weeks Poort, like Meiring's

70 A. Appel : Die distrik Oudtshoorn, pp. 204-205; C.O. 4110 Memorials received, M-P : T. Moodie, 30/4/1859, no. 51 (CAD).

71 B.P.J. Erasmus : Road passes of the Little Karoo (*The Motorist*, 3rd quarter, 1986, p. 29); T.V.Bulpin : *Discovering Southern Africa*, pp. 267-268.



13. A rock profile in Seven Weeks Poort.

Poort, was flood susceptible,⁷² and, on occasion, the focus of disputes concerning neglect, and maintenance liability in general.⁷³

Because of its relative isolation, the toll returns on Seven Weeks Poort were never great (unfortunately, however, no figures are available) and tenders and toll-keepers were difficult to come by as is indicated in a number of reports and advertisements on the matter.⁷⁴

However, numerous writers describe with awe the rugged beauty of the poort,⁷⁵ and a drive through the poort reveals that there is little exaggeration in these descriptions.

3.7 Prince Alfred's Pass

This route linking Avontuur to Knysna via De Vlucht was built

72 *Oudtshoorn Courant*, 19/2/1884 (Minutes of the Prince Albert Divisional Council Meeting of 9/2/1884).

73 *Oudtshoorn Courant*, 27/11/1884 (Minutes of the Prince Albert Divisional Council Meeting of 18/11/1884); PWD 2/5/365, Seven Weeks Poort : Westheden - Secretary of Public Works, 27/3/1896; PWD 1/239 Letters Received, Secretary : T. Bain - Acting Chief Inspector, 29/12/1876 (CAD).

74 *Oudtshoorn Courant*, 1/5/1883, 27/11/1883, 15/1/1884.

75 Anon. : *Reader's Digest Illustrated Guide to Southern Africa*, pp. 120-121; L.G. Green : *Karoo*, p. 112; P.E. Raper: *Dictionary of Southern African Place Names*, p. 293; J. Burman : *The Little Karoo*, pp. 72-75; B.P.J. Erasmus: Road passes of the Little Karoo (*The Motorist*, 3rd quarter, 1986, pp. 28-29); A. Steyn (ed) : *Off the Beaten Track*, p. 262; Dr W.G. Atherstone : *From Grahamstown to the Gough (Selected Articles from the Cape Monthly Magazine - New Series 1870-76, p. 89).*

between 1861 and 1867. Built by convict labour under the direct supervision of Thomas Bain, who, with his family, lived on site at De Vlucht, Prince Alfred's Pass superseded the old Paardekop track.⁷⁶ It served Knysna and the Long Kloof well, providing Knysna, in particular, with a much needed timber outlet. The pass was named after Queen Victoria's second son, Alfred, and not Albert, as could be inferred by J.J. Smit's frequent incorrect referral to it.⁷⁷ Prince Alfred toured the Cape Colony in 1867. Today the pass still bears the Bain stamp of superb drystone pack walls, some as high as sixteen to seventeen meters.⁷⁸

3.8 Robinson's Pass

As the Attaquas Kloof route fell into further disrepair and the Montagu Pass was later viewed as an inconvenient detour to the inhabitants of the Mossel Bay region, a need arose for a more direct route between Mossel Bay and Oudtshoorn.⁷⁹

76 D. Bristow : The Other Garden Route (Car, April 1991, p. 73); M. Leigh : *Touring in South Africa*, p. 62; A. Steyn (ed) : *Off the Beaten Track*, p. 249; P.E. Raper, *op. cit.*, p. 271; PWD 2/333 Letters Received, Miscellaneous : Particulars of Certain Mountain Passes in the Cape Colony, December 1873 - December 1910 (CAD); V.S. Forbes: *Pioneer Travellers of South Africa*, p. 30; J. Burman : *So High the Road*, pp. 118-123; J. Burman : *So far the horizon*, p. 83; Interview with Mr Graham Bellcross, Director of Bartholomew Diaz Museum, Mossel Bay, 20/9/1990.

77 J.J. Smit : Die paaie, passe en rivieroorgange in Suid-Kaapland, p. 17.

78 P. Storrar : *A Colossus of Roads*, pp. 49-53.

79 A. Appel : Die distrik Oudtshoorn, pp. 91, 208-209; J. Burman : *The Little Karoo*, pp. 140-142; J. Burman : *So High the road*, pp. 99-101; M. Leigh: *Touring in South Africa*, pp. 54-55; PWD 2/333 Letters Received, Miscellaneous : Particulars of certain mountain passes in the Cape Colony, December 1873 - December 1910 (CAD).



14. A view of the Tradouw Pass. Note how the new realigned route cuts through the spur while Bain's old road goes around it.

In the 1830s a footpath was used over Ruiterbosch and it was in this area that a survey was conducted in 1858 for a possible road.⁸⁰ In 1863 Parliament voted £15 000 for a road over this route, and Mossel Bay promised the same amount.⁸¹

Opened in 1869, the Robinson Pass, named after the Chief Inspector of Public works, Mr M.R. Robinson, and built under the supervision of Thomas Bain, undoubtedly proved to be a more direct route and was commercially advantageous to Oudtshoorn, the Little Karoo and Mossel Bay.⁸²

3.9 Tradouw Pass

Also referred to as Southey's Pass in the early days after its construction, this pass was one of the earlier ones built by Thomas Bain. Originally farmers from the Swellendam coastal district had to either use Cogman's Kloof, 59,6 miles (96 km) to the west, or Plattekloof, 29,8 miles (48 km) to the east, to cross the Langeberg range.⁸³

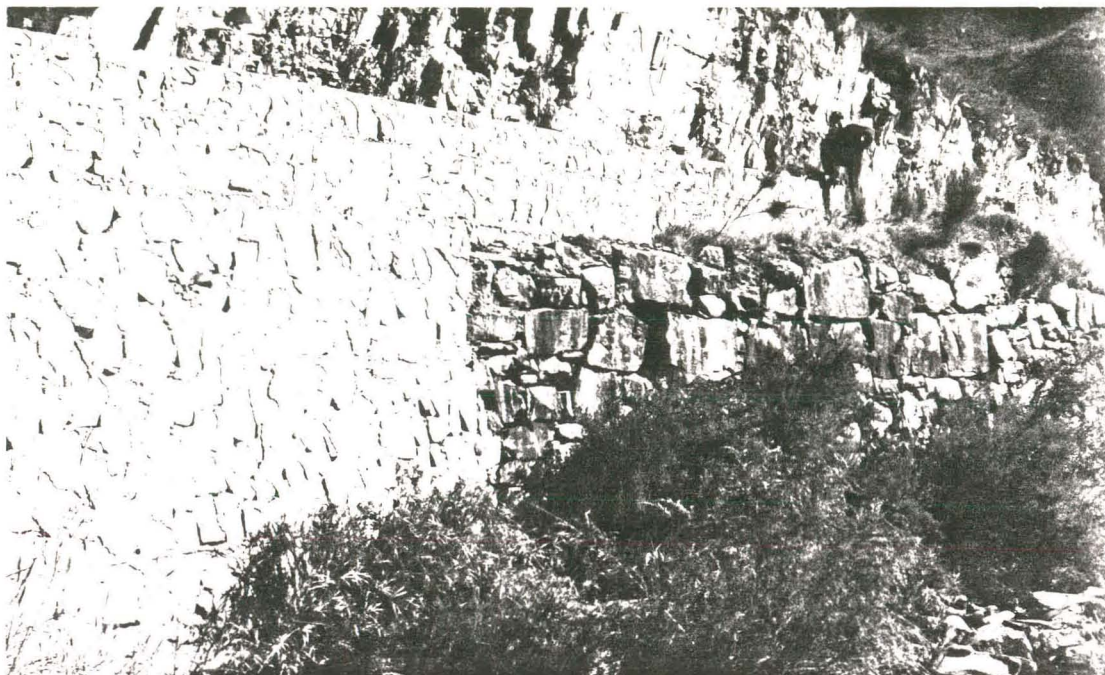
Officially opened in October 1873, the Tradouw Pass helped set up the town of Barrydale at its northern entrance into the Little Karoo. Just as the establishment of churches in farming

80 A. Appel : Die distrik Oudtshoorn, p. 208.

81 *Ibid.*

82 *Ibid.*, p. 209.

83 J. Burman : *The Little Karoo*, pp. 40-44; PWD 2/333 Letters Received, Miscellaneous : Particulars of certain mountain passes in the Cape Colony, December 1873 - December 1910 (CAD); M. Leigh : *Touring in South Africa*, p. 45.



15.i. A view of the old and new stone packs in Tradouw Pass. Much of the new tarred road runs over Bain's original road.



15.ii. A view of the stone pack and cutting in Tradouw Pass.

communities had played a significant role in the settling of the towns of Oudtshoorn and Calitzdorp, so the establishment of a church helped bring Barrydale into existence.⁸⁴

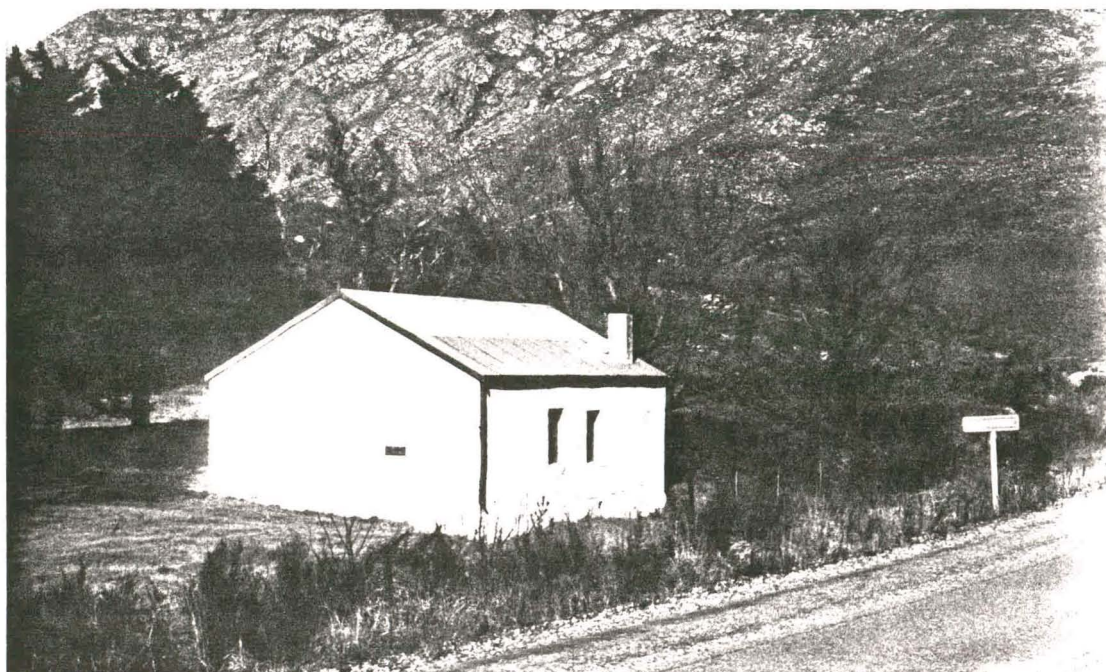
The floods of December 1875 not only damaged the pass, but made Thomas Bain the focus of much criticism from his superiors. Bain was accused of being neglectful in the construction of the pass and inconclusive in his report on the floods.⁸⁵ The road was rebuilt by Bain in 1879.

Flashfloods were to prove great destroyers of early roads, especially mountain passes and routes running through narrow gorges and poorts. The later built Zwartberg Pass would prove a rare exception.

Today the Tradouw Pass has been slightly realigned (discussed in chapter 6). The fact that much of the now tarred road runs over the original route bears not only testimony to Thomas Bain's skillful choice of a route, but may also suggest that he had little scope for any alternatives with the limited construction techniques that were at his disposal.

84 A. Appel : Die distrik Oudtshoorn, p. 191; J. Burman : *The Little Karoo*, pp. 44 and 81.

85 PWD 1/235 Letters Received, Secretary : T. Bain - Chief Inspector, 28/12/1875; PWD 1/236 Letters Received, Secretary : Commissioner - Chief Inspector, 9/3/1876, 29/4/1876, no. 4/237; PWD 1/236 Letters Received, Secretary: T. Bain - Chief Inspector, 4/4/1876 (CAD).



16. The old toll-house in Garcia Pass.

3.10 Garcia Pass

Situated between Riversdale and Ladismith, built by Thomas Bain with convict labour, and named after Mr A.H. Garcia, the Civil Commissioner of Riversdale, this pass together with the Tradouw Pass essentially replaced the old Plattekloof route, and was completed in 1877.⁸⁶

The building of this pass, like with the Tradouw Pass, placed Thomas Bain under the spotlight. His superiors criticized him for the "inaccurate nature of his original estimate" and the excessive height of his retaining walls and the viaducts he planned.⁸⁷ His superiors did not then have a 20th Century perspective and thus could not see that the pass would withstand the ravages of water and time. What becomes apparent is that engineers like Thomas Bain had to walk a tightrope between under- and over-planning and do the best they could under budgetary constraints. On the Tradouw Pass works Bain was accused of being neglectful, while on the Garcia Pass the opposite criticism was levelled: clearly an unenviable position to be in.

Many days of work were lost on the building of the Garcia Pass because of foggy weather, as the superintendent kept the convicts

86 J. Burman : *So high the road*, p. 14; J. Burman : *The Little Karoo*, pp. 48-50; PWD 2/333 Letters Received, Miscellaneous: Particulars of certain mountain passes in the Cape Colony, December 1873 - December 1910 (CAD).

87 PWD 1/235 Letters Received, Secretary : Commissioner - Chief Inspector, 12/1 and 31/3/1876; PWD 1/236 Letters Received, Secretary: Commissioner - Chief Inspector, 15/4 and 29/5/1876 (CAD).

back thinking it would rain.⁸⁸ This circumstance again brought to the fore the issue of the use and/or maintenance and discipline of convict labour (discussed in chapter 4).

3.11 Cogman's Kloof

Another route into the Little Karoo used by pioneer migrant farmers of the 18th Century was Cogman's Kloof. During the early 1840s a small group of farmers moved through the kloof and situated themselves near Barrydale.⁸⁹

A road 7,4 miles (12 km) long through the kloof was built between 1873 and 1877, essentially also under the control of Thomas Bain. Principal features of this work included the heavy blasting undertaken on, for example, the hard rock, the approximately 16 meter tunnel, and again the fact that Bain was censured for the "loose manner" in which he framed his original estimates, "the whole transaction (reflecting) very little credit on the engineer in charge".⁹⁰ The fact that during the dramatic floods of January 1981, Bain's pass stood and was used in preference to the 1952/1953 new pass route, is also a reflection on the engineer in charge!

88 PWD 1/238 Letters Received, Secretary : T. Bain - Chief Inspector, 29/9/1876 (CAD).

89 A. Appel : Die distrik Oudtshoorn, pp. 9,59,62; J. Burman: *So high the road*, p. 2.

90 PWD 1/239 Letters Received, Secretary: Commissioner - Chief Inspector, 24/1/1877 (CAD); J. Burman : *The Little Karoo*, pp. 22-26; PWD 2/333 Letters Received, Miscellaneous: Particulars of certain mountain passes in the Cape Colony, December 1873 - December 1910 (CAD); M. Leigh : *Touring in South Africa*, p. 46.

3.12 The Olifants River Bridge.

The history of the building of the Olifants River Bridge (also known as the Victoria Bridge, or Styl's Drift Bridge) and its demise/failure is interesting for a number of reasons. They are: (i) that it focuses the spotlight on the Public Works Department and their apparent bungling over the choice of a site; (ii) the P.W.D.'s disregard of the warning concerning the financial stability of John Tassie on this work, for they chose him to also conduct work on the Zwartberg Pass; and (iii) it was the first major public work of this nature constructed by the government in the Little Karoo, and along with Irrigation Development and the building of the Zwartberg Pass, a measuring rod as to the extent to which the Colonial Government was prepared to develop the Little Karoo at that stage.

A bridge over the Olifants River was first called for in 1876 to facilitate uninterrupted communication between Mossel Bay and George. The matter was taken to Parliament and John X. Merriman, the then Commissioner of Public Works, visited certain sites at the beginning of 1877.⁹¹ However, it was only in 1880 that Parliament granted funds for the building of the bridge.⁹² Considerable controversy arose concerning the siting of the bridge after Mr P.S. Hyslop, the Government Engineer, identified

91 A. Appel : Die distrik Oudtshoorn, p. 209; *Oudtshoorn Courant*, 29/5/1883; (Naming the Bridge).

92 *The Mossel Bay Advertiser*, 30/5/1883 (Victoria Bridge Opening).

Styl's Drift as the most suitable site.⁹³ It is not necessarily the fact that the severe May 1885 floods devastated the bridge that places a question mark against the better judgement of the P.W.D., as much other damage was also caused.⁹⁴ It is rather that they chose to ignore the fact that no solid foundation for the central pier could be found⁹⁵ and that this was still talked of for two years after the bridge was devastated.⁹⁶ In addition, John Tassie was given £600 on security of his plant.⁹⁷ This did not seem to concern the P.W.D. too much and it is probably only after he encountered further financial difficulties and ultimate bankruptcy on the Zwartberg Pass, that they realized his true position.

The progress of the work was carefully monitored by the *Oudtshoorn Courant*⁹⁸ as the bridge was seen to be of immense

93 *Oudtshoorn Courant*, 8/2/1881, 22/3/1881 (Report of Commissioner of Public Works), 3/1/1882 (Letter from P.W.D. to Editor), 17/1/1882 (Report on site of bridge), 29/5/1883 (Report on opening of Victoria Bridge).

94 *Oudtshoorn Courant*, 21/5/1885 (General Floods), 28/5/1885 (Minutes of a Special Meeting of the Divisional Council of Oudtshoorn), 4/6/1885 (Flood report).

95 *Oudtshoorn Courant* 10/1/1882 (Report on progress of bridge), 29/5/1883 (Report on opening of Victoria Bridge), 17/9/1887 (Leader article).

96 *Oudtshoorn Courant*, 17/9/1887 (Leader article).

97 PWD 1/548 Letters Despatched, General Series : W. Grier - J. Tassie, 15/9/1881, no. 277 (CAD).

98 *Oudtshoorn Courant*, 8/2/1881, 15/3/1881, 22/3/1881, 3/1/1882, 10/1/1882, 17/1/1882, 13/6/1882, 31/10/1882, 21/11/1882, 28/11/1882, 3/5/1883.

social and economic benefit to the public.⁹⁹ The opening of the bridge was a grand occasion, spoilt perhaps by the non-attendance of any representatives from Mossel Bay.¹⁰⁰

The negative reaction to the demand made for the reconstruction of the bridge in 1887¹⁰¹ reflects not only the lack of finances that the P.W.D. were experiencing, but is perhaps also an indication of embarrassment over their previous site blunder, as well as an indication that the Little Karoo was not viewed as being an area of priority as far as public works were concerned; this in the light of the development of railways in other areas.

3.13 Mossel Bay and coastal communication.

In contrast to the traders and merchants of Mossel Bay who saw their village as being the natural sea-port to approximately 12 000 square miles (31 080 km²) of hinterland, there were those who viewed the port as being of lesser value and of serving a smaller area; that is, as being an outlet to only approximately 300 square miles (777 km²)!¹⁰² This difference of opinion came during the period of railway development and was thus to be used in arguments for or against Mossel Bay being included in any

99 *Oudtshoorn Courant*, 8/2/1887 and 15/9/1887 (Leader article).

100 *Oudtshoorn Courant*, 29/5/1883; *The Mossel Bay Advertiser*, 30/5/1883 (Victoria Bridge opening at Styl Drift).

101 *Oudtshoorn Courant*, 17/11/1887 (Minutes of a Meeting of the Oudtshoorn Divisional Council).

102 *Mossel Bay Advertiser*, 31/3/1886 (Letter to Editor); PWD 2/33 Letters Received, Chief Inspector : T. Bain - Acting Chief Inspector, 30/3/1882 (CAD).

railway extension scheme.

What becomes apparent is that from 1879 the port of Mossel Bay began ceding her natural "backyard" to the ports of Cape Town and Port Elizabeth as railway lines linked these ports to the interior,¹⁰³ and as other road communication outlets linked this "backyard" to these interior railway lines (Beaufort West, Prince Albert Road Station and Klipplaat are stations in point). Mossel Bay's backyard thus shrank.

In the period before 1879 Mossel Bay had been a relatively important regional sea-port. Early in the 1730's the first inhabitants had started arriving and settling in the district. Because land communication links were hampered by the difficult topography, namely, the deep, narrow gorges and high krantzies, the idea of coastal communication grew. In the 1770's Anders Sparrman advocated the establishment of harbours along this coastline¹⁰⁴; in 1786 the D.E.I.C. decided to erect a granary at Mossel Bay¹⁰⁵, while in 1787 a decision was taken to open up the area to shipping¹⁰⁶.

103 D.E. Nel : *Die Hawe en Fabrieksnywerhede van Mosselbaai*, p. 20.

104 A.L. Muller : Coastal Shipping and the Early Development of the Southern Cape (*Contree*, No.18, July 1985, p. 11).

105 *Ibid.*

106 D.E. Nel : *Die Hawe en Fabrieksnywerhede van Mosselbaai*, p. 12.

However, very few areas and/or bays along this coastline were suitable for harbour development¹⁰⁷. There were also no navigable rivers, with Port Beaufort and Knysna perhaps providing the only viable natural possibilities to cater for shipping¹⁰⁸. The utilization of the Breë River by the Barry family and the fact that 500 to 600 wagons awaited the maiden trip of the Barry's cutter, "The Duke of Gloucester", says something about the dire need for alternative communication links during the first half of the 19th Century.¹⁰⁹

In 1852 some seventy ships visited Mossel Bay.¹¹⁰ The one limiting factor to the expansion of the harbour utilization was the fact that there were no communication links with Beaufort West and the Great Karoo. The development of these links - Meiring's Poort in particular - brought about an increase in trade. In 1862 a new quay was finished¹¹¹. Even in the decade of the 1870s trade increased, but ultimately the discovery of diamonds and the railway links from the ports of Cape Town and Port Elizabeth began to detrimentally affect trade through this lesser port.

107 Crail Cards, File 61 : J. Coode reporting on Cape Colony Harbours - 1877 (SAL).

108 J.J. Smit : *Die paaie, passe en rivieroorgange in Suid-Kaapland*, 1806-1858, p. 53.

109 *Ibid.*; J.E. Wilson : A changing rural economy and its implications for the Overberg, 1838-1872, pp. 84-85; A.L. Muller: Coastal Shipping and the Early Development of the Southern Cape (*Contree*, No. 18, July 1985, p. 13).

110 D.E. Nel : *Die Hawe en Fabrieksnywerhede van Mosselbaai*, p. 15.

111 *Ibid.*, p. 17.

The building of the Zwartberg Pass in a depression period was unable to bring about any significant return of trade to the port: the pass was, in fact, used by the inhabitants of the Little Karoo as an alternative gateway for trade and transport purposes (discussed in chapter 7.4.2).

CHAPTER 4

CONVICT LABOUR

4.1 The Convict Labour System

The system of using convict labour for the construction and maintenance of roads in the Cape Colony during the 19th Century was not introduced by John Montagu. It was a practice already in existence, for convict labour was used as early as 1824.¹ John Montagu did, however, seek to formulate and develop a system/code whereby the utilization of convicts was to be more effectively co-ordinated, controlled and regulated.²

In his investigation into the existing usage of convict labour Montagu learned that there were a total of 20 parties (9 under the supervision of the Surveyor-General and 11 not under the supervision of his office) varying from 4 to 31 convicts per party.³ Nearly all these convicts were utilized in and around villages and towns, 78% of them being utilized on Public Works.⁴ Of the total of 283 convicts 64 were non-effective, i.e. there was a lost labour rate of approximately 21% on an aggregate of

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- 1 J.J. Smit : Die paaie, passe en rivieroorgange in Suid-Kaapland, 1806-1858, p. 31.
 - 2 OPB 1/5 Copies of Despatches ... from the Governor of the Cape, 23/7/1847 (CAD), pp. 3-86; M.A. Newman : *Biographical Memoir of John Montagu*, pp. 112 and 117.
 - 3 OPB 1/5 Copies of Despatches ... from the Governor : John Montagu - Napier, 16/8/1843, p. 12 (CAD).
 - 4 *Ibid.*, pp. 12-14; J.J. Breitenbach : The Development of the Secretaryship to the Government at the Cape of Good Hope under John Montagu, 1845-1852 (*Archives Yearbook for South African History*, 1959, p. 235).

280 men.⁵ Montagu suggested that convicts should be used in gangs of between 80 to 100 per gang for road construction purposes (opening of mountain passes, the filling of ravines, the construction of bridges etc.), that they should be stationed at distances from towns, and that a code should be formulated for their proper management and discipline.⁶ He further suggested that punishment should decrease in rigour and severity through various stages⁷ and that evening and Sunday Schools should be instituted for the educational and religious improvement and reformation of the convicts.⁸

The code for the management and discipline of convicts laid down strict guidelines to be followed. Rules and regulations were set down concerning the compulsory and regular visitation by magistrates and medical officers, the responsibilities of these and the convict superintending officers, the types of punishments and the severity thereof to be applied, the hours of labour, the scales of rations and items of clothing to be issued, etc.⁹

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- 5 OPB 1/5 Copies of Despatches ... from the Governor : John Montagu - Napier, 16/8/1843, p. 12 (CAD); J.J. Breitenbach: The Development of the Secretaryship ..., pp. 246-247.
 - 6 OPB 1/5 Copies of Despatches ... from the Governor of the Cape: Report by John Montagu, W.Porter and C.Michell - Governor Napier, 4/9/1843, p. 15 (CAD); J.J. Breitenbach : The Development of the Secretaryship, Vol II, pp. 237-238.
 - 7 OPB 1/5, Copies of Despatches ... from the Governor : John Montagu - Governor Napier, 11/9/1843, p. 16 (CAD).
 - 8 *Ibid.*; G. 12-'67 Report of the Superintendent-General of Convicts for the Year 1866, pp. 9-10, ix (CAD).
 - 9 OPB 1/5 Copies of Despatches ... from the Governor : John Montagu - Napier : Regulations for the discipline and Management of Convicts employed on the roads of the Colony

The convicts were to be divided into 3 classes : the penal ("chain gang") class where bad characters or those whose sentences exceeded 5 years were to be placed; the probation class for those who were sentenced for less than 5 years and whose characters were not so bad; and the good-conduct class ("coffee gang"). When one-sixth of the sentence of a convict from the penal class had expired, he was to be eligible for transfer to the probation class. In this probation class the convict could be rewarded for good conduct - through a one-fifth mitigation of sentence, by being allowed to see friends at stipulated times, by receiving and sending letters, and/or by receiving $\frac{1}{2}$ lb (0,22 kg) tobacco per month. The probationer could also be promoted to the good-conduct class after two-fifths of his sentence had expired. The good-conduct class was to be created to reduce the significant transition from discipline to complete freedom.¹⁰ It was also established to encourage reformation through rewards for good conduct and to test this apparent reformation under restraint.¹¹

An analysis of the convict system over the years reveals that adherence to the rules and regulations was not always practical. Over the years there was a clear erosion, or non-adherence to the codes in some form or another at the various convict stations

of the Cape of Good Hope, 1/1/1844, pp. 72-80 (CAD).

10 G. 21-'57 Report of the Superintendent-General of Convicts on the working of the Convict System during the years 1855 and 1856 : Charles Piers - Colonial Secretary, pp. 3-4 (CAD).

11 *Ibid.*, p. 12.

throughout the Colony. The impracticability of the division of convicts into various classes is glaringly apparent in the report of the committee appointed in September 1887 to investigate this very situation. In investigating 34 of the 111 gaols and 12 of the convict stations in the Colony the committee came to the conclusion that classification was "utterly impossible".¹² The Kimberley gaol, for example, designed to accommodate 145 prisoners, had 820 crowded in, the major reason being prosecution for pass law violations. During a 3 - year period no less than 19 334 were arrested: during one of those years, there were 6 702 arrests made and on one particular day, 286 were arrested.¹³ The report of the Committee on Convicts and Gaols also revealed that whatever distinction had been proposed and codified existed merely on paper.¹⁴ Convicts were, in many instances, kept together irrespective of "class, gravity of crime, or nationality".¹⁵

For the period 1844 to 1856 and beyond, the most prevalent crime in the colony was theft (of cattle, horses or sheep) and/or the

12 G. 2-'88 Report of the Committee on Convicts and Gaols, p. 1; A. 12-'88 Select Committee Report on Convict Stations and Prisons Bill : Testimony of Mr Percy Nightingale (Inspecting Civil Commissioner), p. 17; PWD 2/224 Letters Received, Colonial Secretary : Chief Inspector - Colonial Secretary, 29/3/1883 (CAD).

13 G. 2-'88, Report on the Committee on Convicts and Gaols, p. ii (CAD).

14 *Ibid.*, p. xxxiii.

15 *Ibid*; A. 12-'88, Select Committee Report on Convict Stations and Prisons Bill, p. 14.

receipt of stolen goods.¹⁶ Of the "Europeans" sentenced the majority were for military-related offences, or for charges under the Merchant Seaman's Act.¹⁷ Of the crimes committed at the several convict stations laziness, disobedience and neglect of orders were by far the most prevalent.¹⁸ Of the punishments meted out "bread and water for 2 days", extra labour hours and solitary confinement from between 24 to 36 hours were respectively the most popular and useful in the eyes of the superintending staff.¹⁹ Of the more serious punishments meted out solitary confinement and spare diet [8oz (226,8g) of rice boiled in water and salt, or one pound (0,45kg) of bread and a tin of water²⁰] were favoured the most, while corporal punishment was also inflicted: however, this was mainly for cases of desertion.²¹

16 G. 21-'57 Report of the Superintendent-General of Convicts on the working of the Convict System during the years 1855 and 1856 : Charles Piers - Colonial Secretary, p. 5; G. 2-'67 Report of the Superintendent-General of Convicts for the year 1866, p. 3 (CAD).

17 G. 21-'57 Report of the Superintendent-General of Convicts on the working of the Convict System during the years 1855 and 1856: Charles Piers - Colonial Secretary, p. 5 (CAD).

18 G. 12-'67 Report of the Superintendent-General of Convicts for the year 1866, p. vi (CAD).

19 *Ibid.*, p. vii.

20 A. 12-'88 Select Committee Report on Convict Stations and Prisons Bill : Testimony of Mr Percy Nightingale, p. 10 (CAD).

21 G. 12-'67 Report of the Superintendent-General of Convicts for the year 1866, p. vii (CAD).

Several inhumane practices and abuses that had become entrenched in the convict system were criticised in a Select Committee Report.²² An attack was launched on punishing by means of a spare diet (then stipulated "not to exceed 14 days"), by a district surgeon who maintained that even 5 consecutive days' spare diet was the most inhuman punishment he had heard of.²³ Deserters could also be punished by receiving "up to 50 lashes".²⁴ Although these punishments were seldom inflicted the potential for application existed.

The convict labour system became further eroded and may be subjected to criticism in several other areas. This was due to various factors, namely: the impracticability of the implementation of specific rules (as illustrated concerning the issue of convict classification), the adaptation of rules to meet specific convict stations and situations, or the confusion arising from circulars amending rules and regulations over the years.²⁵ Although the rules made school and chapel attendance on a regular basis compulsory,²⁶ the statement by Mr Mark Harris in

22 A. 12-'88 Select Committee Report on Convict Stations and Prisons Bill, pp. 2,10 (CAD).

23 *Ibid.*, p. 10.

24 *Ibid.*, p. 5.

25 A. 12-'88 Select Committee report on Convict Stations and Prisons Bill : Testimony of Mr H.H. McNaughton (Assistant Commissioner of Crown Lands), pp. 51 and Appendix A, p. i (CAD).

26 G. 21-'57 Report of the Superintendent-General of Convicts on the working of the Convict System during the years 1855 and 1856 : Charles Piers - Colonial Secretary, p. 7 (CAD).

a letter to Parliament claiming the contrary²⁷ illustrates that not all convict stations followed the stipulated code "religiously".

Furthermore, the practice of allocating convicts to out-stations was extensively used. While this was not against the rules and while it helped improve road development timetables, it militated against the adequate maintenance and discipline of convicts.²⁸ The officers and overseers at these out-stations tended to lighten convict duties on account of having worked with the men all day. The officers themselves only did what was absolutely necessary on arriving back at the stations in the evening. A further reason for this decrease in labour output was the physically taxing labour expended during the day.²⁹

The effectiveness of the convict system was further hampered by periodic clashes that occurred between convict superintendents and road overseers. The conflict over this dual control of convicts (also discussed in Chapter 6) was exploited by the convicts themselves, obviously to the detriment of the system and

27 *Ibid*; A. 12-'88 Select Committee Report on Convict Stations and Prisons Bill : Mark Harris - Sir Gordon Sprigg, pp. xii-xiii (CAD).

28 G. 21-'57, Report of the Superintendent-General of Convicts on the working of the Convict System during the years 1855 and 1856 : Charles Piers - Colonial Secretary, March 1857, p. 8 (CAD).

29 G. 21-'57 Report of the Superintendent-General of Convicts on the working of the Convict System during the years 1855 and 1856 : Charles Piers - Colonial Secretary, March 1857, p. 8 (CAD).

the work at hand.³⁰

The appointment of the commission on convict diets and their subsequent report in 1867 illustrates the diversity of diets utilized, and thus the adaptation of the recommended diet ration as laid down in the Montagu code.³¹ The recommended diet/scale of

rations was :	1½ lb bread or flour	(0,67kg)
	2 oz rice	(56,7g)
	1½ lb fresh meat	(0,67kg)
	½ oz salt ³²	(14,17g)

The resolution the commission reached was that there was no necessity for a uniform system of rations.³³ It is clear from the report that race, climate and specific conditions at various stations were factors in their deliberations and coloured the

30 PWD 1/238 Letters Received, Secretary : T. Bain - Chief Inspector, 29/9/1876; G. 2-'88 Report of the Committee on Convicts and Gaols, p. iv; A. 12-'88 Select Committee Report on Convict Stations and Prisons Bill : Testimony of Mr H. McNaughton, p. 45 (CAD).

31 A. 11-'67 Proceedings and Report of the Commission on Convict Diet, pp. 4-10, 28-33, 58-59; OPB 1/5 Copies of Despatches ... from the Governor of the Cape : Regulations for the Discipline and Management of Convicts employed on the Roads of the Colony of the Cape of Good Hope, 1/1/1844, p. 77; A. 12-'88 Select Committee Report on Convict Stations and Prisons Bill: Testimony of Mr Percy Nightingale, p. 12 (CAD).

32 OPB 1/5, Copies of Despatches ... from the Governor of the Cape : Regulations for the Discipline and Management of Convicts employed on the Roads of the Colony of the Cape of Good Hope, 1/1/1844, p. 77 (CAD).

33 A. 11-'67 Proceedings and Report of the Commission on Convict Diet, p. 5; A. 12-'88 Select Committee Report on Convict Stations and Prisons Bill : Testimony of Mr H. de Smidt, p. 30 (CAD).

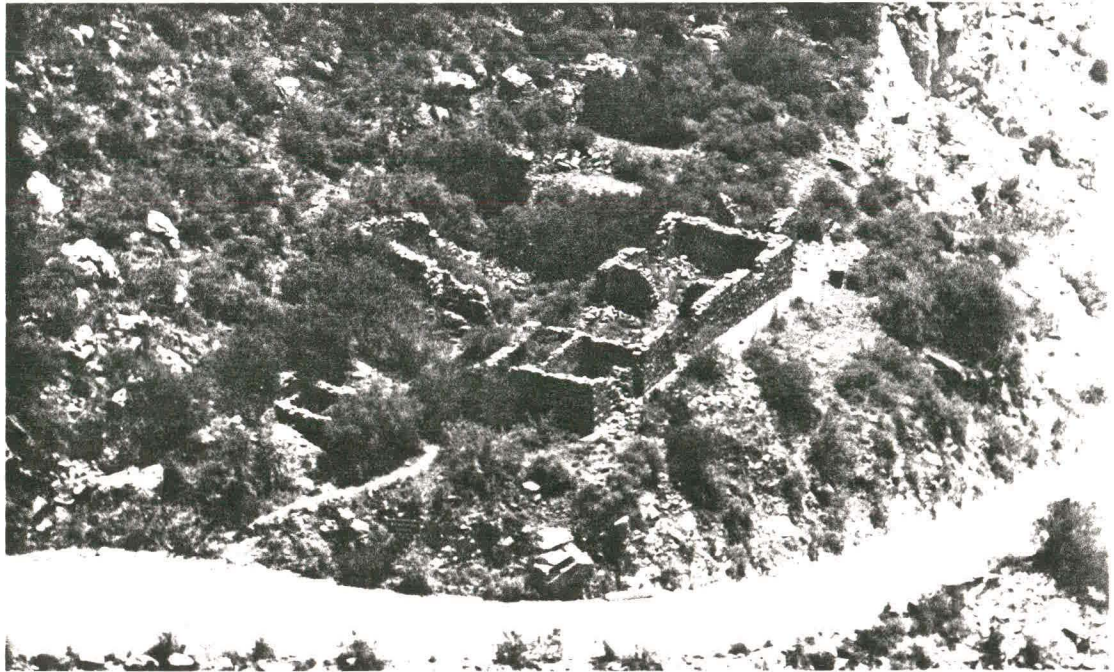
resolutions reached.

There were those who felt that the system of utilizing convict labour was not as cost effective as procuring free labour at the same rate (i.e. at 3s-6d) would be, for paid free men (masons, artisans, etc.) worked from 6.30 am to 5.30 pm, while convicts effectively worked from 8.30 am to 4.00 pm and were thus not always available to provide the necessary back up supplementary labour.³⁴ It was probably due to a similar argument that the Zwartberg Pass was initially handed out to tender (discussed in Chapter 5).

Convict Stations fell under the Colonial Secretary's Departments' control up to 1879. From July 1879 to January 1888 this control was placed under the office of the Commissioner of Crown lands while the Attorney General's Department had their turn from 1888 to 1894, after which the Colonial Secretary again received the responsibility. This rotation may be interpreted as an acknowledgement by the colonial government of the inability of the various departments to adequately control an evolving system, and/or of an attempt to solve the friction caused by the dual control of convicts by road overseers and convict superintendents (mentioned above).

The convict system nonetheless helped facilitate communication and carried the development thereof throughout the Colony. As a

34 PWD 2/42 Letters Received, Chief Inspector : R.Wright - Chief Inspector, 27/6/1884 (CAD).



17. A view of the ruins of the convict station ("blikstasie").

result there were general social and economic benefits for all colonists of the Cape Colony in the second half of the 19th Century.

4.2 Convict labour on the Zwartberg Pass

On 11 April 1883 the Chief Inspector of Public Works forwarded a plan and a Memo of Instructions for the erection of a convict station on the Zwartberg Pass to Thomas Bain³⁵. Formal authority for the Public Works Department to utilize convict labour for the completion of the Pass was a foregone conclusion as John Tassie's surety, Mr P. Louw, had not been in a position to continue the work.³⁶ The months between April and August were thus used as preparatory months for the many arrangements that needed to be finalized.

Work by convict labour started in August 1883, there being an average of 117 convicts busy on the pass in that month.³⁷ These labourers came from Knysna. By September this convict number had reached 123,³⁸ with the September monthly average eventually being fixed at 129. This figure soon reached 150,³⁹ and continued

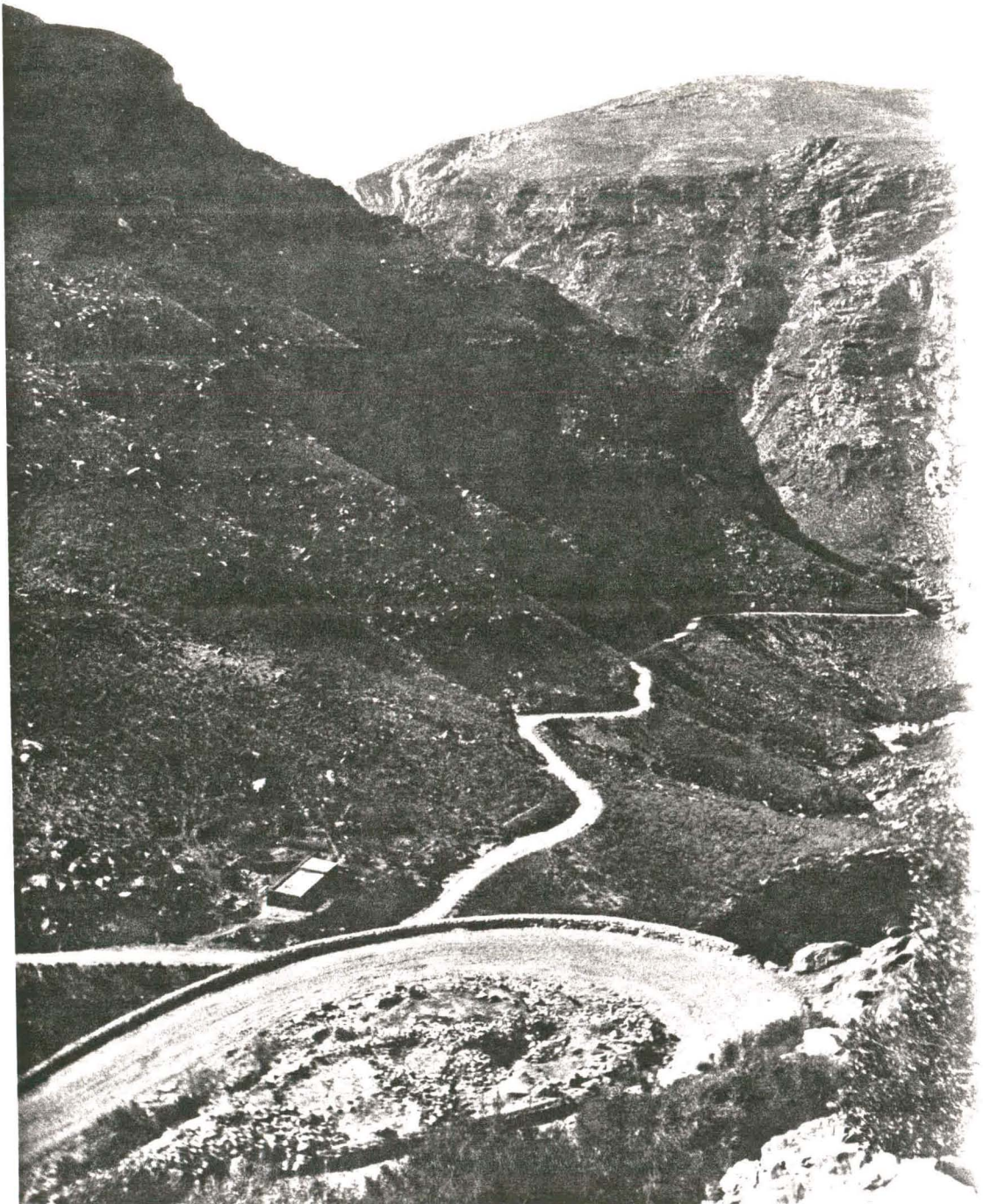
35 PWD 1/549 Letters Despatched, General Series : Chief Inspector - T. Bain, 11/4/1883, no. 2/146 (CAD).

36 PWD 1/549 Letters Despatched, General Series : Chief Inspector - T. Bain, 17/4/1883, no. 2/150 (CAD).

37 PWD 2/5/365 Prince Albert Zwartberg Road Works : Convict Labour Returns (CAD).

38 C.O. 6378 Letters Received, Convict Station, Tzitzikamma, Zwartberg 1883 : F. Dreyer reporting (CAD).

39 *Oudtshoorn Courant*, 9/10/1883.



18. A view of what the convict station originally looked like.

to rise and fluctuate over the years, peaking at an average of 447 in February 1887.⁴⁰ These figures end all speculation and dispute as to how many convicts were actually utilized to build the Zwartberg Pass.⁴¹ From these same statistics in the "Convict Labour Return" one may also conclude that the figures given by certain authors on the number of sheep and cattle slaughtered on a daily basis to feed the convicts, are also incorrect.⁴²

The convicts ate twice a day. The reason given was that they worked two miles from the convict station and that if they returned for lunch they would lose up to one-and-a-half hours labour daily. The rations the convicts were allocated each morning consisted of 6 oz. (170g) of mealie meal (used for porridge) and three-quarter lbs of bread which they generally took to work with them. In the evening the convicts each received a one-and-a-quarter lb meat ration (weighed raw), three-quarter lbs of bread, and one quart of soup, to which was added 6 oz (170g) of vegetables, 2 oz (56,7g) of beans or rice, and half an ounce of salt. The meat ration was boiled in the soup.⁴³

40 For a monthly average "Convict Labour Return" of convicts employed on the Zwartberg Pass see Appendix 7.

41 S. Van Waart : *Swartberg en sy mense*, pp. 14-15.

42 S. Van Waart : *Swartberg en sy mense*, p. 17, and H. Marincowitz : *Swartberg Pass*, p. 6; W. Bird : *State of the Cape of Good Hope in 1822*, pp. 97-98; A. 11-'67 Proceedings and Report of the Commission on Convict Diet : W. Pinto - Colonial Secretary, 28/3/1867, p. 47 (CAD).

43 C.O. 6378 Letters Received, Convict Station, Tzitzikamma, Zwartberg 1883 : F. Dreyer reporting, 11/10/1883. G. 2-'88: Report of the Committee on Convicts and Gaols, p. 339 (CAD).

The conditions on the Zwartberg were not easy for the convict labourers. Besides the hard labour, the cold, dampness and snow were also bothersome features of their life there. The Visiting Magistrate and the Medical Officer both complained of the dampness of one of the convict stations and the effect that this would have on the convicts. Extracts from the Visiting Magistrate's notebook of 19 June 1884 reveal that nine men were lying on ordinary platforms in the convict hospital, five had their beds made up on the ground, while one man was lying on the ground with no planks; while it was also reported that the floors were saturated with water. It was also stated that there was no sub-soil drainage from the site.⁴⁴ The dampness had been caused by heavy rain and snow storms of 16 to 18 June, 22 and 23 June, and 27 to 29 June 1884. Snow up to one-and-a-half feet deep (0,45m) fell and the sixty men occupying the barracks did not help matters much by continually walking in and out of the barracks.⁴⁵ In his report to Grier, Thomas Bain stated that it was not uncommon for men to wake up stiff and cold in the morning. While surveying the pass Bain had reported pitching his tent in the same spot and being snowed in for two days. However, he soon got over the cold through exercise.⁴⁶ This seemingly unsympathetic statement was indirectly censured by the Assistant Commissioner of Crown Lands and Public Works through his refusal

44 PWD 1/256 Letters Received, Secretary for Public Works: Assistant Commissioner - Chief Inspector, 30/6/1884; Visiting Surgeon - Commissioner, 20/6/1884 (CAD).

45 PWD 1/293 Letters Received, Road and Building Works Officials: J. Fitz-Neville - T. Bain, 7/7/1884 (CAD).

46 PWD 1/293 Letters Received, Road and Building Works Officials : T. Bain - W. Grier, 14/7/1884 (CAD).

to allow more convicts to be sent to the Zwartberg Pass until "the lamentable state of affairs at that establishment" had been remedied.⁴⁷ The convicts were eventually allowed an extra woollen blanket at Bain's request.⁴⁸ The dampness was removed by having fires continually burning in the barracks for a number of days (i.e. from 17 to 23 July).

Despite the good rations the convicts received daily,⁴⁹ the accumulative effect of the damp and cold severely affected their health. A great number were constantly being treated for bronchial infections. Dr William Ward (his predecessors on the Pass were Dr Mearns, a Visiting Surgeon, and Dr Kingston, the first Resident Surgeon) gave evidence that on his arrival in December 1886 he had found the daily average of sick convicts to be 60 out of 420 (i.e. 15%). This was reduced to 2 out of 380⁵⁰ which must certainly have increased cost effectiveness. In addition to the sick, there was also a "convict cripple span" which Bain suggested should be utilized on a more cost effective basis. This "cripple care span" was a "light duty" team that generally comprised approximately 4% of the convict total. Bain proposed acquiring washing machines, available at £7 each, to

47 PWD 1/256 Letters Received, Secretary for Public Works : Assistant Commissioner - Chief Inspector, 4/7/1884 (CAD).

48 PWD 1/397 Registers of Letters Received, Roads : T. Bain - Commissioner, 27/6/1884 (CAD).

49 PWD 1/596 Letters Despatched, Secretary for Public Works: W. Grier - Assistant Commissioner, 16/10/1885, p. 715 (CAD).

50 G. 2-'88 : Report of the Committee on Convicts and Gaols, p. 342 (CAD).

free the 7- or 8-man team whose duty it was at that time, from this tedious job. This team could then be utilized on the road while the "cripple span" could man the washing machines.⁵¹

Another cause of concern to the health of the convicts was the limited space available to each in the barracks (the minimum space allowed was two-and-a half feet per convict and this was the general principle used to arrive at convict number allocations per station)⁵² where the convicts lay side by side on a wooden platform at night. The smoking and spitting during the night excacerbated the situation.⁵³ The number of convicts suffering from syphillis was also a major concern both on the Zwartberg Pass and in the Prince Albert and Beaufort West gaols. F. Dreyer, the Superintendent of Convicts on the Pass reported the spread of the disease at the Zwartberg Station, mentioning that some of the convicts who had recently joined the work force had the disease and had spread it to at least nine others.⁵⁴ Despite some cases being far advanced they had been sent from gaols to the Zwartberg Pass carrying good health certificates. Besides the physical welfare of the convicts being cared for by

51 PWD 1/293 Letters Received, Road and Building Works Officials: T. Bain - Chief Inspector, 12/5/1884 (CAD).

52 PWD 1/545 Letters Despatched, General Series : A. English - T. Bain, 21/10/1879, no. 571; PWD 1/238 Letters Received, Secretary for Public Works : T. Bain - Chief Inspector, 29/9/1876 (CAD).

53 G. 2 - '88 Report on the Committee on Convicts and Gaols, p.344 (CAD).

54 C.O. 6378 Letters Received, Convict Station, Tzitzikamma, Zwartberg, 1883 : F. Dreyer (Superintendent of Convicts on the Zwartberg Pass Works) reporting, 25/10/1883 (CAD).

the surgeon, the mental and spiritual welfare of the convicts was also taken into consideration and catered for in the elementary schooling they received. Schooling was indeed elementary, as convicts were schooled in the Lord's Prayer, the Belief, the Ten Commandments, etc. The chaplain appointed to minister to the convicts was Rev. W. Collins from Oudtshoorn. He received £36 per annum for this enormous task which he undertook on a regular basis, while the surgeon received £50 and allowances, and the Superintendent, F. Dreyer, £180 and allowances.⁵⁵

A source of nuisance and worry to the people of Prince Albert concerning the convicts was the water pollution that stemmed from the washing of their clothes and the cleaning of entrails. This water passed through the village and thus detrimentally affected the inhabitants.⁵⁶

The convicts were divided into three classes according to the "Regulations for the Discipline and Management of Convicts" promulgated on 15 June 1854.⁵⁷ Most of the literature on the Zwartberg Pass and other works completed by convict labour make

55 PWD 1/588 Letters Despatched, Secretary : Civil Establishment Return, 28/1/1879, no. 38, p. 448; PWD 1/589 Letters Despatched, Secretary : Civil Establishment Return, 30/6/1881, p. 662; PWD 1/595 Letters Despatched, Secretary: W. Grier - Assistant Commissioner, 10/1/1884, p. 88 (CAD).

56 C.O. 6386 : H. Mearns (District Surgeon) - Prince Albert Board of Management, 10/9/1886; Civil Commissioner - Public Works Department, 27/9/1886 (CAD).

57 G. 2-'88 : Report on the Committee on Convicts and Gaols, p. 337 (CAD).

mention of two classes, colloquially calling them the "coffee team" and the "chain gang" team. Most Convict Stations had rationalized the rules and regulations over the years, having found the implementation of the official rules and regulations impractical. Most stations therefore had two classes. However, on the Zwartberg Pass there were three classes : the Penal class, the Probation class and the Good Conduct class. The promotion of convicts from one class to another was controlled, and only happened if it was recommended by the Superintendent of Convicts and ratified by the Commissioner of Crown Lands and Public Works.⁵⁸ Promotion was thus an incentive for convicts to aim at, as promotion held out the possibility of receiving groceries and/or tobacco in the "upper" classes. The difficulty, however, was that it was not possible to keep the classes separate as accomodation and space were limited.

The movement of convicts on the Zwartberg Pass was strictly controlled. Any movement of a convict station had first to have clearance from the Commissioner of Crown Lands and Public Works.⁵⁹ The controlling body, consisting of the Superintendent of Convicts, Frank Dreyer, two Head Overseers, ten Sub-Overseers, two Chief Constables, two Assistant Chief Constables, one Acting

58 C.O. 6378 Letters Received, Convict Station, Tzitzikamma, Zwartberg, 1883 : F.Dreyer - Commissioner, 6/10/1883 (CAD).

59 PWD 1/551 Letters Despatched, General Series : T. Bain - W. Grier, 13/3/1885, no. 2/40; PWD 1/596 Letters Despatched, Secretary: T. Bain - Chief Inspector, 23/2/1885, p. 74 (CAD).

Chief Constable and twenty-nine constables or guards⁶⁰ could not afford to lose vigilance for a moment as the thought of escaping was foremost in the convict's mind.⁶¹

For a perspective of the total maintenance and discipline of convicts in the Cape Colony from 1880 to 1889 and of the Zwartberg Convict Station within this system an analysis of some statistics is useful.

60 G. 2 -'88 Report of the Committee on Convicts and Gaols, p. 336 (CAD).

61 *Oudtshoorn Courant*, 15/10/1885; G. 2 -'88 Report of the Committee on Convicts and Gaols, pp. xix and 344-345 (CAD).

**Maintenance and Discipline of Convicts in
the Cape Colony : 1880 - 1888**⁶²

Year	Number of Convicts	Number of Desertions	Number of Deaths	Punishment	Cost of Discipline	Cost of Maintenance
1880	1591	13	39	18 convicts receive 477 lashes. Ave: 26,5 per man, Homtini Station Highest. Ave: 43 per man punished	£23 298	£40 983
1881	1504				£21 439	£31 999

62 G. 55-'81 Memorandum upon the Discipline and Maintenance of Convicts during 1880 : Commissioner - Parliament, 28/3/1881; G. 62-'82 Memorandum upon the Discipline and Maintenance of Convicts during 1881 : Commissioner - Parliament, 21/2/1882, pp. 6-13; G. 63-'83 Memorandum upon the Discipline and Maintenance of Convicts during 1882 : Commissioner - Parliament, 24/4/1883, pp. 1-13; G. 37-'84 Memorandum upon the Discipline and Maintenance of Convicts during 1883 : Commissioner - Parliament, 14/3/1884, pp. 1-7; G. 44-'86 Memorandum upon the Discipline and Maintenance of Convicts during 1885 : Commissioner - Parliament, 7/5/1886, pp. 1-7; G. 50-'87 Memorandum upon the Discipline and Maintenance of Convicts during 1886 : Commissioner - Parliament, 7/5/1887, pp. 1-7; G. 54-'88 Memorandum upon the Discipline and Maintenance of Convicts during 1887 : Attorney General - Parliament, 25/6/1888, pp. 1-7; G. 39-'89 Report upon the Discipline and Maintenance of Convicts during 1888 : High Sheriff - Parliament, 11/6/1889, pp. 1-7 (CAD).

1882	1430	12	26	14 con- victs receive 353 lashes. Ave: 25,2 per man, Tzitzzi- kamma Station High- est. Ave: 27,4 per man punish- ed	£21 924	£31 145
1883	1923, Zwart- berg Station 4th larg- est. Ave: 221 con- victs			26 con- victs receive lashes. Ave: 24,4 per man, Knysna + Zwart- berg Station High- est. Ave: 37 per man	£24 695	£38 777
1884	No	records	found			
1885	2362 Zwart- berg Station 4th larg- est. Ave: 337 con- victs	25	55	30 men receive lashes. Ave: 22,6 per man, Zwart- berg Station 4th highest average	£26 484	£38 655

1886	1988 Zwart- berg Station 3rd largest with 386 con- victs in January 1886	25	46	42 men receive 866 lashes. Ave: 20,6 per man. East London + Zwart- berg Station Highest Ave: 25 per man	£30 323	£44 262
1887	1686 Zwart- berg Station 2nd larg- est. 230 in Decem- ber Ave: 329 for year	18	23	23 men receive 456 lashes. Ave: 19,8 per man. Zwart- berg 2nd highest 25 per man	£27 858	£29 323
1888	1571 Zwart- berg Sta- tion, 2nd larg- est. 230 in Janu- ary, 164 in Decem- ber Ave: 183	10	18		£26 381	£24 254

Convict stations were controlled by the Colonial Secretary until July 1879, by the Commissioner of Crown Lands from July 1879 to January 1888, and by the Attorney General from 1 January 1888.

While it is generally accepted that the Zwartberg Pass cost
£14 761 -9s -8d to build,

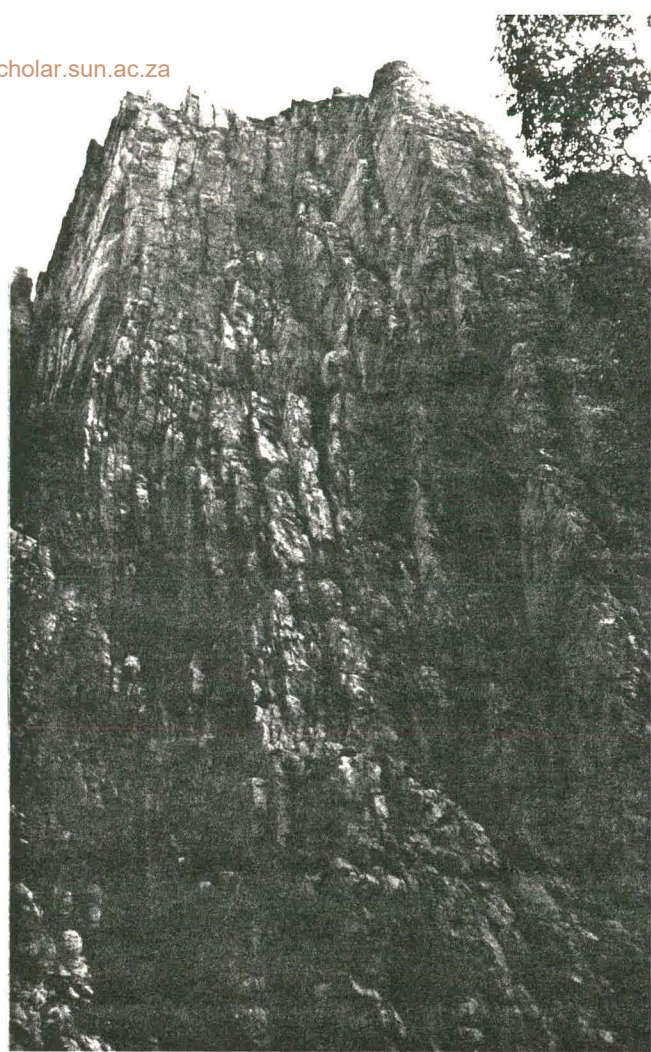
Cost of supervision	£1 743	-1s	-4d
Cost of plant and material used for the work	8 548	-18s	-11d
Contractor's fee	4 156	-2s	-10d
Expenses connected with opening ceremony	313	-6s	-7d
	14 761	-9s	-8d

this figure does not take into consideration the maintenance and discipline of the convicts raised under another vote in Parliament. All things being considered, the cost of discipline being £18 475, the cost of maintenance £24 810, and the value of convict labour being calculated at 2/- per diem for 375,962 days (an average number of 285,25 convicts worked 1 318 days, the value of their labour totalling £37 596), the total cost of the Zwartberg Pass was £58 046.⁶³

15 October 1889 was the last date on which expenditure chargeable to the Convict Vote for the Zwartberg Pass Works was made. From the Zwartberg Pass and the Schoemans Poort Works the convicts were to be sent to the De Beers Convict Station, the Prince Albert gaol, the Victoria West gaol, George and Beaufort West.⁶⁴

63 PWD 2/5/365 Prince Albert Zwartberg Pass Works : Convict Labour Return to House of Assembly, 30/5/1888 (CAD). These figures are of course different from those estimated by Thomas Bain in July 1879 (PWD 1/280) and as given in Appendix 1. Here Bain calculated that it would take 300 convicts 720 days to complete the work at an average cost of 1/6 per convict per day.

64 PWD 2/11/4 Employment of Convicts : High Sheriff - Assistant Commissioner, 12/8/1889 (CAD).



19. Views of rock profiles in the Zwartberg Mountains near the northern entrance to the pass illustrating the intense warping, folding and overfolding.

CHAPTER 5

AN INTRODUCTION TO THE BUILDING OF THE ZWARTBERG PASS

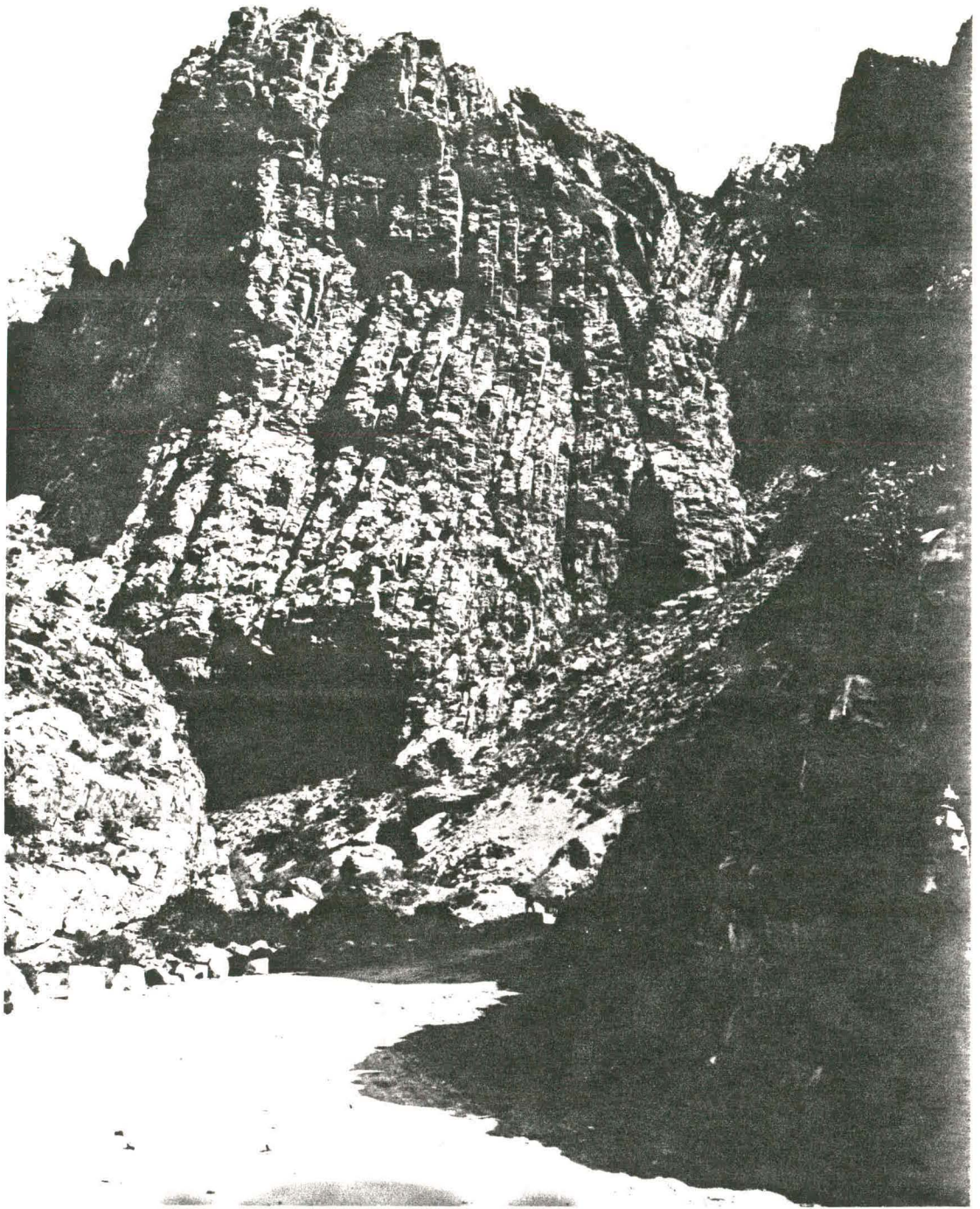
5.1 The geology and topography of the Cape Colony

Geologists argue that approximately 250 to 500 million years ago major movements of the earth's crust caused a bowl-shaped depression which became a repository for layers of sediment. The great weight of this sediment with a warping of the strata disturbed the lower layers of rocks. The 'lips' of this depression were forced together resulting in huge alternating anticlinal and synclinal mountain ranges on the southern tip of Africa. This is evident in the intense warping, folding, overfolding and thrust faulting of the mountain ranges in this area.¹

The geological formations and mountains in this area form what is generally known as the Cape Supergroup. Rocks of the Cape Supergroup run in an L-shaped manner along the southern and south western coastal regions of the Cape, with the southern belt approximately 60 miles (96,5 km).² The Cape Supergroup (or system) has been divided into 3 groups (or series), namely: the Table Mountain Group, the Bokkeveld Group, and the Witteberg Group. The quartzitic sandstones are the main unifying rocks in all these groups. The Cape Fold Belt is the southern part of the

1 A.B.A. Brink : *Engineering Geology of Southern Africa* (Vol 2), p. 172; Map compiled by the Department of Environmental Affairs for the Zwartberg Hiking Trail.

2 A.B.A. Brink : *Engineering Geology of Southern Africa* (Vol 2), pp. 168-169.



20. A view of vertical folding in the Zwartberg Pass taken from north of "Eerstewater" onto a Western buttress.

Supergroup.

The Zwartberg Range in this Cape Fold Belt runs as a 124,2 mile (200 km) long barrier between the Little and Great Karoos. Between Touwsberg and the southern flank of the Zwartberg Range, the Buffels River (Grootrivier), the Table Mountain series dives down and surfaces at the foot of the Zwartberg Range. This geological feature could only be seen should a landslide occur as no surface signs of a fault are visible. However, it is manifest in the plant types and extends until beyond Ladismith. East of the town en route to Seven Weeks Poort signs of the massive shifting become visible. In the Gamka Valley a change in the surface formation becomes evident and for miles east and south of Calitzdorp long, narrow hilltops (flat ridges) with wash-away stone and gravel, sand and clay are a feature of the countryside. This formation runs itself out in a break line against the Congo series.³

North of Oudtshoorn there is a strip of land very different in form, plant growth and fertility to the area south of Oudtshoorn. This strip of land (of which the Congo Valley is part) is fed by many streams from the Zwartberg Range. The presence of limestone in this series makes this a fertile area for agriculture.⁴ The Oudtshoorn and Calitzdorp districts are also fertile mainly as a result of the alluvial soil carried down from the Great Karoo

3 M.S. Taljaard : *Oor Berge en Vlaktes*, pp. 112-116.

4 C.F. Juritz : *A study of the agricultural soils of the Cape Colony*, pp. 96-99.

through the Olifants and Gamka Rivers.⁵

From the Zwartberg the sharp folds of the Table Mountain series and their southern depressions surface on the Outeniqua again. These sharp folds also vanish to the north beneath the Great Karoo at Prince Albert. From the summit of the Zwartberg the pale yellow hilltops of the Bokkeveld series below the Olifants River can be seen. They then dip below the enon plains of the Oudtshoorn flat land.⁶

In the ravines and gorges of the Zwartberg Mountain Range clear evidence of folding is to be found. The mountains around Seven Weeks Poort, Meiring's Poort and in the vicinity of the Zwartberg Pass bear colourful testimony to a world turned upside-down. The area over which the Zwartberg Pass runs is made up of Table Mountain, upper and lower sandstone soil with quartzite and a little shale.⁷ The name Zwartberg (Black Mountains) is almost a misnomer for from the south they look reddish-orange from oxidized minerals, and from the north they sometimes appear black.⁸ However, to some the colours appear the opposite way

5 D.E. Nel : *Die hawe en Fabrieksnywerhede van Mosselbaai*, p. 70; C.F. Juritz : *A study of the agricultural soils of the Cape Colony*, p. 96.

6 M.S. Taljaard : *Oor berge en vlaktes*, p. 119.

7 South Africa 1 : 125 000 Geological Survey map, 3321 B Gamkapoort and 3322 A Prince Albert (inclusive), 1965; G. 45-93: Report upon the geology and mineral resources of the Division of Prince Albert and surrounding districts, pp. 3,4, and 12.

8 J. Clarke : *Mountain Odyssey in Southern Africa*, p. 41.

around, all of this again depending on the time of day and the angle of the sun. The yellowish lichen adds to the colour scheme.

The mountainous interior of the Cape Colony provided a serious obstacle for the development of trade and communication links to the early authorities, explorers, pioneers and travellers of South Africa.⁹ This was compounded by the fact that there were virtually no navigable rivers.¹⁰ Rivers actually proved more of a hindrance than a help to early travellers as the deep ravines had to be crossed. Ravines like the Gouritz and Kaaimans proved extremely hazardous and the area east of George through to Plettenberg Bay, a ravine and densely forested area, proved almost impenetrable.

Because farmers were cut off from markets for their produce there was no stimulus for industry. Thus to unlock the agricultural potential of the Cape and of areas such as the rich and fertile Cango valley and the Little Karoo, good road links and mountain passes were essential. It was John Montagu, Government Secretary, who pioneered the road development system, and civil engineers like A.G. and T.C.J. Bain who were tasked with predicting the effect that these geological conditions and features would have on the roads. "Nature to be commanded had to be understood"¹¹ and

9 D.E. Nel : *Die Hawe en Fabrieksnywerhede van Mosselbaai*, p. 110.

10 The Breede River was the only exception. See chapter 3.13 for more on river and coastal communication.

11 Francis Bacon as quoted in R.F. Legget : *Geology and Engineering*, Preface.



21. Two views of the northern entrance to the Zwartberg Pass.

so these 19th Century engineering pioneers overcame these geological and topographical obstacles.

5.2 Petition

The Civil Commissioner and Residential Magistrate of Prince Albert, George Rainier, petitioned the Cape Government on behalf of the inhabitants of Prince Albert in 1878 and 1879 for a direct road link between Oudtshoorn and Prince Albert, and consequently Prince Albert Road Station.¹² Oudtshoorn was cited as being one of the most important and wealthy divisions in the Colony, with it and Prince Albert, and the rich Congo Valley providing corn, wine, fruit, grain, brandy, tobacco, raisins, wool and ostrich feathers. The Oudtshoorn and Congo Valley produce would therefore be channelled via Prince Albert which would be a conduit to the railway station at Prince Albert Road. Economic and market considerations were forwarded to thus motivate this call for a route over the Zwartberg.

By 1878, the date from which the Zwartberg Pass was petitioned, the Little Karoo had several entrances and exits. Various routes crossed the Langeberg and Outeniqua ranges, namely: the old pioneer Attaquas Kloof track had been replaced by the Robinson Pass linking Mossel Bay and Oudtshoorn (opened in 1869), the Montagu Pass (opened in 1847) had replaced the Cradock Pass, and the Prince Alfred's Pass (1867) had superseded the old Devil's Head and Paardekop Passes. In addition, two main routes crossed

12 A. 39-'79 : Petition of Prince Albert inhabitants, pp. 1-2; PWD 1/244 Letters Received from Assistant Commissioner : Commissioner - Chief Inspector, 22/10/1878 (CAD).

the Zwartberg range, namely : Meiring's Poort (opened in 1858) and Seven Weeks Poort (opened in 1862).¹³

The distance from Oudtshoorn to Prince Albert Road Station via Meiring's Poort was 96 miles (154,4 km). A direct route across the Zwartberg would be 62 miles (99,7 km). The trip around Meiring's Poort was therefore a 34-mile (54,7 km) detour which travellers and farmers, seeking a market for their produce, had to make on their journey between Oudtshoorn and Prince Albert. This would normally have been an extra two to three day journey for heavily laden ox wagons. After Prince Albert the next destination for these 19th Century travellers was Prince Albert Road Station. It was argued that the Pass would be an outlet for over 3 000 vehicles per annum, and that besides other economic and market benefits, it would open up vast tracts of Crown Land on the Zwartberg, to be used for grazing, and possibly plantations. The Pass would certainly benefit the Little Karoo and wider community by saving time and distances to be travelled.¹⁴

The route via Seven Weeks Poort was not a viable option. Two possibilities could have been followed: the route from Oudtshoorn to Calitzdorp, then on through the Huis River Pass (this pass was, however, only completed in the 1890s so it was not a

13 All these routes are discussed in more depth in chapters 2 and 3. See also Map M3/3044 (CAD).

14 A. 11-'81 : Select Committee Report on Prince Albert Loan Bill, May 1881, p. 4; A. 44-'79 Return in compliance with a resolution of the Honourable the Legislative Council, dated 22 July 1879 (CAD).

considered option at this stage), Seven Weeks Poort, Bosluiskloof and on to Prince Albert was approximately 96 miles (154,4 km). The route from Oudtshoorn to Prince Albert via Caledon Kloof (Caledon Kloof was used before the Huis River Pass) and Seven Weeks Poort was approximately 102 miles (164 km). The distances to Prince Albert Road Station using the above two routes were approximately 97 miles (156 km) and 105 miles (107 km) respectively. Besides the distance to consider the Oudtshoorn and Little Karoo producers used Meiring's Poort in preference to Seven Weeks Poort, for from Klaarstroom they had three options: (a) to Prince Albert and on to Prince Albert Road Station; (b) on to Beaufort West; and (c) east to Willowmore and the Klipplaat Station on the Midlands railway line. Most of their produce did in fact go east.¹⁵

The distance from George to Beaufort (later Beaufort West) over Spitskop in the Zwartberg range took 21 hours by horse, and by wagon through Towerwater Poort, was given to take approximately 48 hours.¹⁶ This, however, appears to have been a very optimistic time for a wagon, unless by wagon we take it to mean by "horse and wagon" (ie. cart), for if we take Varian's figures the ox-wagon averaged 12-14 miles (56,3 km) a day. According to H.F. Varian, a fully laden ox-wagon could average 12 to 14 miles a day

15 M.3/3044 : Map to accompany Mr Bain's report upon the destruction of Meiring's Poort, 22/6/1885 (CAD). All the distances mentioned above were taken from the map drawn by Thomas Bain upon the destruction of Meirings Poort after the floods of 1885.

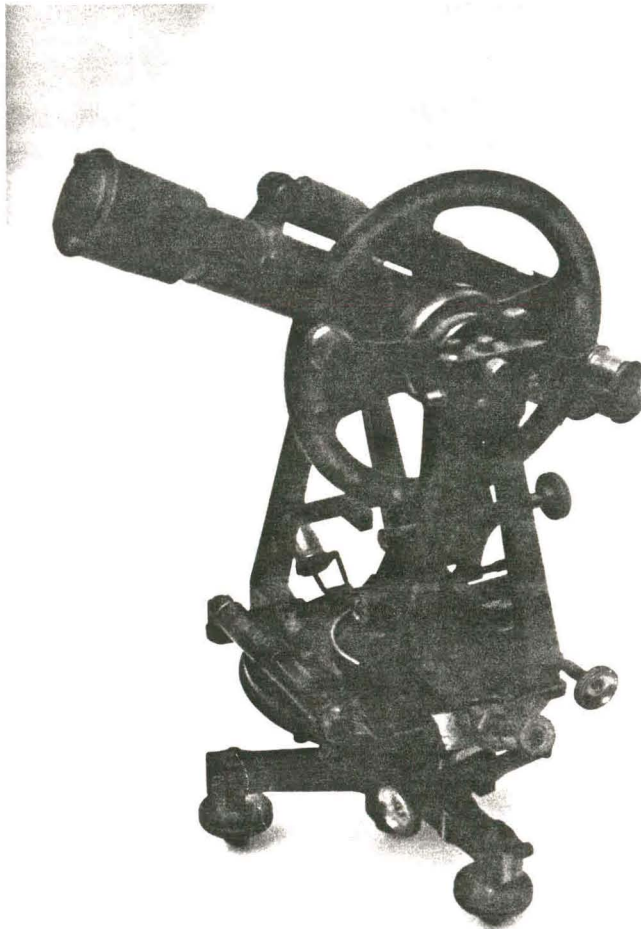
16 C.O. 4044 Memorials Received : A. Allen - John Montagu, 1/9/1849 (CAD).

with 2 outspans in dry weather, while Cape carts could average 35 miles (56,3 km) a day where there were roads.¹⁷ The route over Spitskop could, however, not be traversed by ox-wagon, and therefore a link/pass over the Zwartberg was deemed necessary. The distance from Mossel Bay to Beaufort was cited as being 180 miles (290 km), or in travelling time, 5 days.¹⁸ The route which would have been used here would either have been through Attaquas Kloof, or have been a detour via George and over the Montagu Pass. The differences in time of 5 days by some and 21 hours by others which are given, must surely have been the result of the differences in mode of transport, ie. using horses as opposed to ox-drawn wagons. On average, ox-drawn wagons travelled at the rate of 3 miles (4,8 km) per hour, and a cart and horse at 6 miles (9,6 km) per hour.¹⁹ Thus the journey from Mossel Bay to Beaufort by wagon must have been done at approximately 36 miles (58 km) per day, or 12 hours travelling time per day (both very approximate figures) while the horse rider taking 21 hours must have travelled at not much less than 7 miles (11,2 km) per hour, with very little chance of a rest on his trip to Beaufort, the distance from George to Beaufort being approximately 145 miles (233 km).

17 D.H. Heydenrych : A colony of carriers (*Kleio*, XXIII, 1991, p. 21); H.F. Varian : *Some African Milestones*, p. 3.

18 RBG I : Mr Aspelings report of 28/12/1853.

19 C.G. Botha : *Social Life in the Cape Colony in the 18th century*; J.J. Smit : Die paaie, passe en rivieroorgange in Suid-Kaapland, 1806-1854, pp. 10-11.



22. A theodolite, possibly like that used by Thomas Bain.

Besides the distance and time that would be saved, the necessity for an "all-weather" road was great. (By all weather, rain and possible flooding is implied. The Zwartberg Pass is still periodically (at least once a year) closed on account of snow falls.) Meiring's Poort, as we have seen,²⁰ was susceptible to flash floods and there were periods when this route through the Zwartberg was closed for lengthy repair work periods. Seven Weeks Poort was not much better.

5.3 Survey and Planning

Thomas Bain was tasked with finding a practical route over the Zwartberg.²¹ Various routes had, and would still be suggested at later stages as alternative links between the Little and Great Karoos. Four possible routes were investigated before Bain made a final decision. Bain stated that he had seldom set out a pass with so little chance for good gradients.²² As can be seen from a survey (see Appendix 14 fig. 5 and fig. 11) ultimately the gradients were steeper in many places than the maximum recommended gradient of 1 : 8.

Although not specifically stated in any document, Thomas Bain most likely used a theodolite to survey the route. The vernier principle was invented in 1593 by the mathematician, Clavius, although at the time it was used for setting out, and not

20 Referred to in chapter 3.

21 PWD 1/391 Registers of Letters Received : Chief Inspector - T. Bain, 23/10/1878 (CAD).

22 PWD 1/280 Letters Received, Road and Building Works officials: T. Bain - Chief Inspector, 24/7/1879 (CAD).

measuring angles and distances. An English mechanic, John Sisson, made the first theodolite in 1730.²³ The plain "Y" or English theodolite was not so heavy and was more portable than the "transit". Vertical angles were measured on a semi-circular arc, the telescope being mounted in Y-supports. The whole system was levelled by a four-screw parallel-plate mounting system, this eventually being superseded by the three-screw tribach system. The "Everest" theodolite was designed by Sir George Everest around 1830. It used the tribach mounting model system. Thomas Bain's father, Andrew Geddes Bain, would most likely have used this instrument. It was not very popular, however, as it was susceptible to dampness and dust and was not easy to transport in transit. The theodolite that Thomas probably used was very much smaller. Theodolites had evolved and would continue to do so until they reached the virtual peak of their limits of perfection and reliability. The instrument Thomas used was thus most probably a repeating theodolite. (He may possibly even have used a chain and an abney level for setting out the gradients, as abney levels were in use at the time. Thomas Bain would not, however, have had to be so precise in his survey and plan. This is also confirmed by the scope his superior, W. Grier, gave to would-be contractors in the Specifications Schedule he drew up on 17 December 1880²⁴). The problem with the repetition method of angle measurement was that it was hampered by graduation and

23 R.C. Cox : Men and Instruments - Impressions of Surveying in the Nineteenth Century (*Survey Review XXIV*, 188, April 1978, p. 247).

24 PWD 1/547 Letters Despatched, General Series : W. Grier - Contractors, 17/12/1880, no. 201 (CAD).

eccentricity errors.²⁵ The problem for all surveyors with the direction theodolite was the necessity of having to read the diametrically opposed micrometers from the other side of the instrument, and then having to average readings to avoid eccentricity errors. This had to be done by walking around the instrument each time a reading was taken - a time-consuming inconvenience.

Improvements in the 20th Century included greater magnification compound microscopes of the circle division, the coincidence method for reading graduated circles, the adjacent eyepiece for double-optical readings, the "light-gap" method and, more recently, the introduction of the electronic theodolite, the incremental method, and ultimately, the photo-electric sensor replacing the observer's eye in the "absolute" measuring system where graduations are electronically coded and micrometer readings are scanned.²⁶ These developments indicate not only the extent to which surveying instruments have improved but also highlight the instruments pioneer surveyors had to use, and the calculations which followed. Thomas Bain did all his own surveys (although he was accompanied by Mr Stephens on his Zwartberg Survey). He mostly used horses in moving from site to site for both inspection and survey purposes. Surveying during that period was certainly an arduous task. However, it cannot be denied that men like Thomas Bain were rugged pioneers and that the task of

25 R.C. Cox : The development of Survey Instrumentation, 1780-1980 (*Survey Review XXVIII*, January 1980, p. 237).

26 *Ibid.*, p. 239.

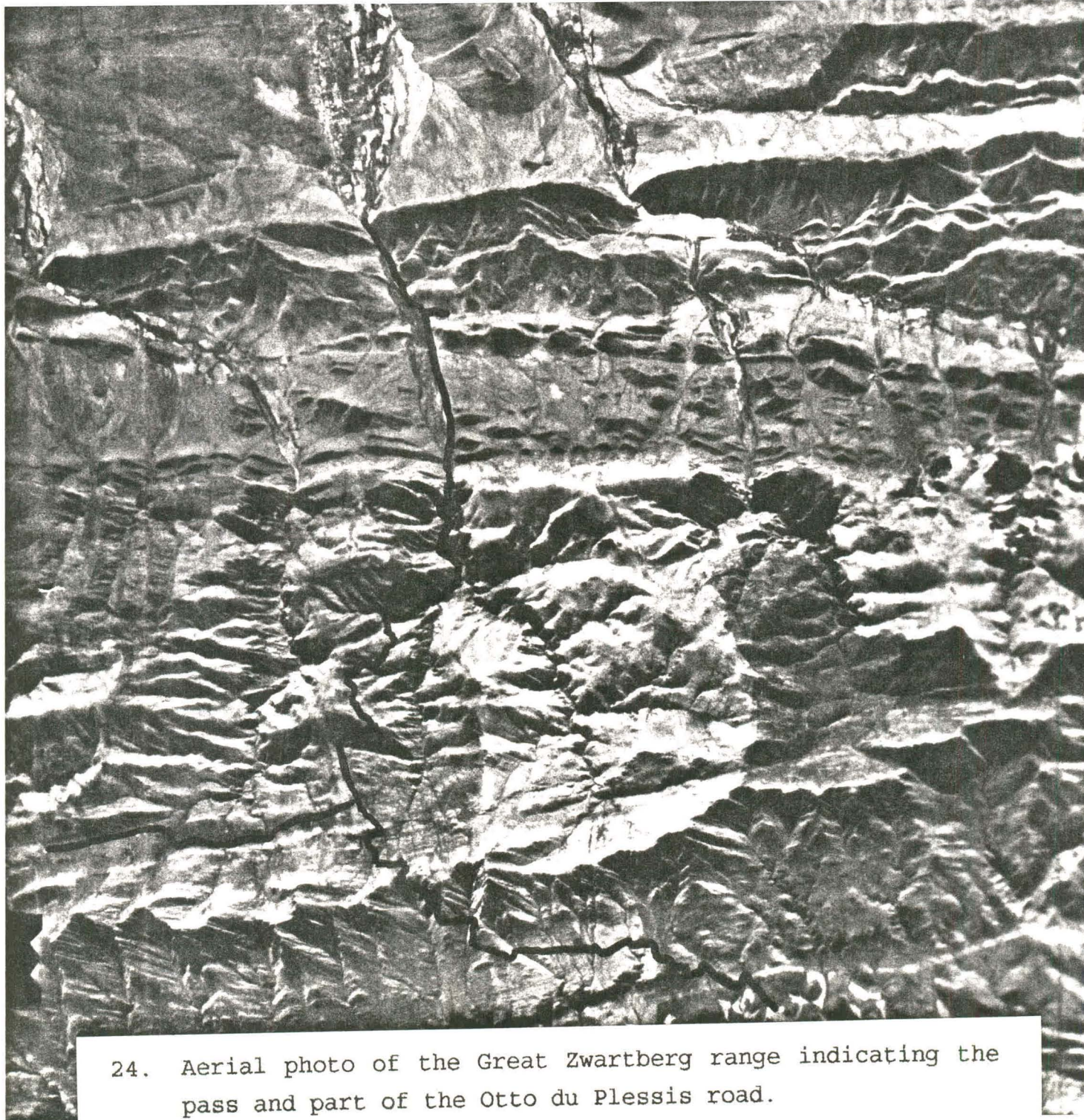
finding a route over the Zwartberg would have had to be achieved by crossing that range several times, either by horse or on foot, with surveying instruments strapped to the shoulder or back.

Bain most likely chose his route topographically rather than geologically.²⁷ Despite not having the benefit of such a map, Bain was undoubtedly a man of considerable geological talents, and would thus possibly have been aware of the fault at the northern entrance to the route he chose over the Zwartberg. The route chosen follows the defile between the kranz sentinels before moving upwards to "the wall" or "zig-zag" section, and was topographically the most practical. In the pioneer years of civil engineering in South Africa few civil engineers were also active geologists. Thomas Bain was an exception who combined both skills. Essentially the geologist cites the problems while the engineer considers how he can change existing conditions to accommodate his plan.²⁸ It was only from the 1930s onwards that the geology of sites regularly became included in the minutes and surveys of engineering societies. An elementary study of geology and rock mechanics has now become part of the training that all aspirant civil engineers must undergo. The tops of the Langeberg, Outeniqua and Zwartberg Mountain Ranges occupy crested axes of antic-lines.²⁹ The transportation links of the early Cape Colony

27 South Africa 1 : 125 000 Geological survey map of the area, 3321B Gamkapoort and 3322A Prince Albert (inclusive), 1965.

28 R.F. Legget : *Geology and Engineering*, p. 69.

29 A.B.A. Brink : *Engineering Geology of Southern Africa*, Vol 2, p. 168. For more on the geology of the Zwartberg see chapter 5.1.



24. Aerial photo of the Great Zwartberg range indicating the pass and part of the Otto du Plessis road.

had therefore to take cognizance of these encircling mountains, and wagons penetrating the interior had to cross them. As techniques and tools/equipment were limited, many communication lines had to either be built in narrow valleys and gorges, or had to circumscribe these obstacles. Bain must have been aware of these problems and therefore exhibited tremendous faith in his techniques, and great initiative in setting out the route as he did over the Zwartberg. It was of course not the first pass to cross over the top of a mountain range, but it was probably the most bold in concept and design. Only in the later part of the 20th Century have civil engineers evolved sophisticated techniques to overcome these highly folded and deeply incised rocks.³⁰ Modern examples are the new Garden Route bridges and the Du Toits Kloof tunnel. The investigation into a series of tunnels through the Zwartberg Range in the early 1960s could also not have been undertaken were it not for these techniques. In surveys done today, shorter routes are taken. Nowadays the 'slide potential' along with short and long term economic implications are assessed.³¹ The ecological and environmental impact has also become a growing concern that has gained much attention.³²

30 *Ibid.*, p. 169.

31 B.A. Kantley : Slope Instability in Phyllites of the Kango Group - George - Oudtshoorn and Huis River Pass (A.B.A. Brink : *Engineering Geology of Southern Africa*, p. 121).

32 Further discussion below in chapter 6.1.4.2. See also M.J. Mountain, Bridges on rocks of the Table Mountain Group - Bloukrans, Bobbejans and Groot River Bridges of the Garden Route (A.B.A. Brink : *Engineering Geology of Southern Africa*, p. 202).

Besides not having a geological map there were no topographical maps or aerial photographs at Bain's disposal. All his judgements, measurements and surveys would thus have been done on the ground. Notwithstanding all the different varieties of maps and techniques available to the modern civil engineer, the work done by Bain could scarcely have been bettered.³³ He produced his own sketches of the planned routes, besides which his work has stood the test of time.

Thomas Bain would also most likely have had to carry a rigid tripod (as opposed to one with telescopic legs) with him on his survey.³⁴ This instrument was cumbersome and further emphasizes the handicaps that engineers of the nineteenth century had to overcome. Bain possibly also used the Hypsometer (an instrument used for determining altitude from the temperature of boiling water) for obtaining readings for his datum levels.³⁵ He could also have used an arbitrary datum and occasionally, when wanting to read altitudes above sea-level, a mercury column.³⁶ The

33 See aerial photograph in comparison with the topographical sketch of the Zwartberg as drawn by Bain "on the ground" (M3/533). A remarkable example of the artistry and accuracy of Thomas Bain.

34 An example of the rigid tripod is on view at the Trigonometric Survey Museum, Mowbray, Cape Town.

35 PWD 1/280 Letters Received, Road and Building Works officials: T. Bain - Chief Inspector, 24/7/1879 (CAD). The altitude above sea-level is given as 3 460 feet (1054,6 m); A. 13-'87 Select Committee Report on the Zwartberg, p. 6 (CAD). Bain gives the altitudes of the northern and southern sections of the pass as being 2 640 feet and 2 200 feet from their respective bases.

36 A. Descendant : Thomas Charles Bain - Road Engineer Extraordinary (*The South African Survey Journal*, No 66, Vol

Gunter's, and later the engineer's chain was standard equipment for the civil engineer. Initially however, the most serious fault of the chain was its tendency to change length under field conditions. This should not have affected Bain however, for in 1833 a spring-return linen tape was patented, and in 1842 a metallic woven tape as well as a steel tape were also patented. The quality of materials thus improved, and it was most likely that Bain used the steel tape. Plastic has now replaced the linen variety and steel tapes are often also plastic-coated for protection from the weather.³⁷ The Gunter's chain was 66 feet, or just over 20 meters in length, comprising one hundred links with brass tags, or tellers, every tenth link.³⁸ According to Bain the Zwartberg Pass measured 1 180 chains, or fourteen and three-quarter miles (ie. 80 chains per mile). The northern ascent measures eight miles (12,8 km), the southern ascent six miles (9,6 km).³⁹ (On a visit to the pass on 13/8/1991 Mr M.D. Radford and I tried to find the original bench mark from which Bain

XI, December 1967). This "descendant" was probably R.F. Bain, as indicated on a copy of the same survey journal in the University of Cape Town's Jagger Documents Library. A. Roberts, a past president of the Institute of Civil Engineers, in an article on Thomas Bain in *Looking Back* (September 1981) also discusses the manner in which Bain went to work. This article is, however, **very** similar to the one written by R.F. Bain, or "A. Descendant".

- 37 R.C. Cox : The development of survey instrumentation, 1780-1980. (*Survey Review XXVIII*, 219, January 1980, p. 246).
- 38 J.A. Bennet : *The divided circle*, p. 194; This measurement was in English feet. One English foot is equivalent to 0,3048 meters; SABS M33a The International Metric System.
- 39 PWD 1/293 Letters Received, Road and Building Works Officials: Zwartberg Mountain Pass - Memo of measurements taken, T. Bain - Chief Inspector, 31/7/1879; M 3/533 Plan and Section of a Proposed Road at the Zwartberg, 31/7/1879 (CAD).

worked. The position of the bench mark is clearly indicated on the 'Plan and Section' of the proposed road as drawn up by Bain. We worked using the Memo of Measurements (PWD 1/293) also drawn up by Bain, our measurements taken from the first distinct land mark and working back. Unfortunately the bench mark could not be found as it has in all probability been buried under tons of rubble in subsequent repair and maintenance operations. It could also have been displaced when the entrance to the pass was rebuilt. As far as can be determined only the approach road to the buttresses at the northern entrance has been realigned and rebuilt. The remainder of the pass is very much in its original state with little scope for realignment).

The road starts to climb at a gradient of 1 : 17 after one mile and 4 chains. This was also where the bridle path and the road first coincided. After two miles and thirteen chains the steepest gradient (as given on Bain's sketch) in the Pass (1 : 8) starts. It runs past the waterfall, Mullers Kloof, through the zig-zags, and ends at three miles and 42 chains.⁴⁰ This zig-zag section is one mile and 29 chains in length, a steep climb! There is also a section on the southern side of the Pass with a gradient of 1 : 8 for one mile and 7 chains, the next steepest section on that side being 1 : 12.⁴¹ The wall⁴² is ascended by moving up a series

40 "Mullers Kloof" is the name by which Bain referred to it. The zig-zag section is only just over one mile in length (or 1,6 kms). Therefore the 16 kms as indicated in G. McCann's article, "The brilliance of Thomas Bain" in *Personality* Jan 6, 1988, must have been a typographical error.

41 S. van Waart : *Swartberg en sy mense*, p. 14. The gradient of the pass is not 1 : 3 in places!

of zig-zags, there being a total of three zig-zags from the base of the Pass to its summit,⁴³ this from where the Pass descends to the Cango Valley. A recent survey of the Pass indicates that there are steeper sections on the Pass than the maximum prescribed gradient of 1 : 8 (see Appendix 14 figs. 5 and 11). This would indicate that Bain's sketch of the plan and section was not accurately followed.

Thomas Bain returned from the Zwartberg and submitted his report to James Fforde, the Chief Inspector of Public Works, on 24 July 1879.⁴⁴ The Plan and Section of the proposed road was completed by him on 31 July.⁴⁵ The steep gradients were cited by him as being an engineering problem which could be overcome. Besides, the gradient of 1 : 8 was not as steep as the Montagu with its 1 : 6 gradient. Bain, a practical man, accepting the challenge and seeing the advantages, strongly recommended that the Pass be built. It would be a principal feeder to the Beaufort West railway line and if it was built it would not be necessary to build the Huis River road to the west as not much traffic would go west to Ladismith. Besides, the Caledon Kloof Pass had been

42 "The wall" is the name commonly given to the zig-zag section on the northern side of the pass.

43 PWD 1/293 Letters Received, Road and Building Works officials: Zwartberg Mountain Pass - Memo of Measurements taken, T. Bain - Chief Inspector, 31/7/1879 (CAD). Here Bain called the summit "Blue Berg".

44 PWD 1/280 Letters Received, Road and Building Works Officials: T. Bain - J. Fforde, 24/7/1879 (CAD).

45 M 3/533 : Plan and section of a Proposed Road over the Zwartberg, 31/7/1879 (CAD). For a comparison of three surveys done of the Zwartberg Pass see Appendix 13 fig. 11.

repaired and it was argued that the Zwartberg Pass would meet the requirements of the Oudtshoorn division.⁴⁶ Bain further argued that the Pass would be well adapted to convict labour (his words had a prophetic ring to them as convict labour was in fact used to complete the major section of this pass when the contractor, John Tassie, became insolvent), and also suggested a main station at the foot of the northern side to house approximately 200 convicts, and one out-station on the southern side to house approximately 100 men. His eagerness, and his negotiations with the two farmers, F. de Witt (on the Prince Albert side of the proposed Pass) and D. Terblans on the Oudtshoorn side proved premature, as it would take some time before the Pass would be commenced and initially this would be done by contract. Bain set the cost of the work at £24 942 by free labour and at £10 418 by convict labour (see Appendix 1).

On 8 July 1879 the Cape Parliament decided that the question of building the Pass be considered in the next parliamentary year. However, the inhabitants of Prince Albert were not keen to wait, and held a public meeting on 25 July 1879 to generate support for the Pass. By this same date a bridle path had already been established five miles up the northern ascent.⁴⁷ From this time onwards there would be considerable debate concerning the extent to which Oudtshoorn and Prince Albert would support the building of the Pass.

46 PWD 1/280 Letters Received, Road and Building Works Officials: T. Bain - J. Fforde, 24/7/1879 (CAD).

47 *Beaufort Courier*, 25/7/1879.

On 5 December 1879 Bain, after having re-examined the Pass, reported that there was little scope for modifying the steep gradients. On the Prince Albert side only about a quarter of a mile could be altered to a 1 : 10 gradient at the extra cost of £400, and on the Oudtshoorn side a half mile could be altered for between £1 200 and £1 600.⁴⁸ Bain also reported that the Prince Albert Divisional Council had already established a bridle path to the limits of their division. The decision of the Commissioner of Crown Lands and Public Works to delay any further consideration of the Pass must have been a blow to the village of Prince Albert and those advocates of the Pass.⁴⁹ However, the persistence of the Prince Albert residents⁵⁰ and these advocates eventually resulted in the House of Assembly and the Legislative Council passing the Zwartberg Pass resolution on 28 July and 30 July 1880, respectively.⁵¹

James Fforde, Chief Inspector of Public Works, inspected Bain's proposed route over the Zwartberg. He concurred with Bain that the route chosen was the most practical. It is clear that the Public Works Department was aware of financial restraints. Fforde suggested that in order to test his estimate that the work could be done for less than £20 000 they could firstly reduce the width

48 PWD 2/27 Letters Received, Chief Inspector : T. Bain - Chief Inspector, 5/12/1879 (CAD).

49 PWD 1/247 Letters Received, Secretary for Public Works: C.B. Elliot - Chief Inspector, 27/1/1880, No 4/38 (CAD).

50 *Oudtshoorn Courant*, 1/6/1880.

51 PWD 2/327 Letters Received, Specified Subjects : D.C. Oudtshoorn - Colonial Government, 5/4/1881 (CAD).

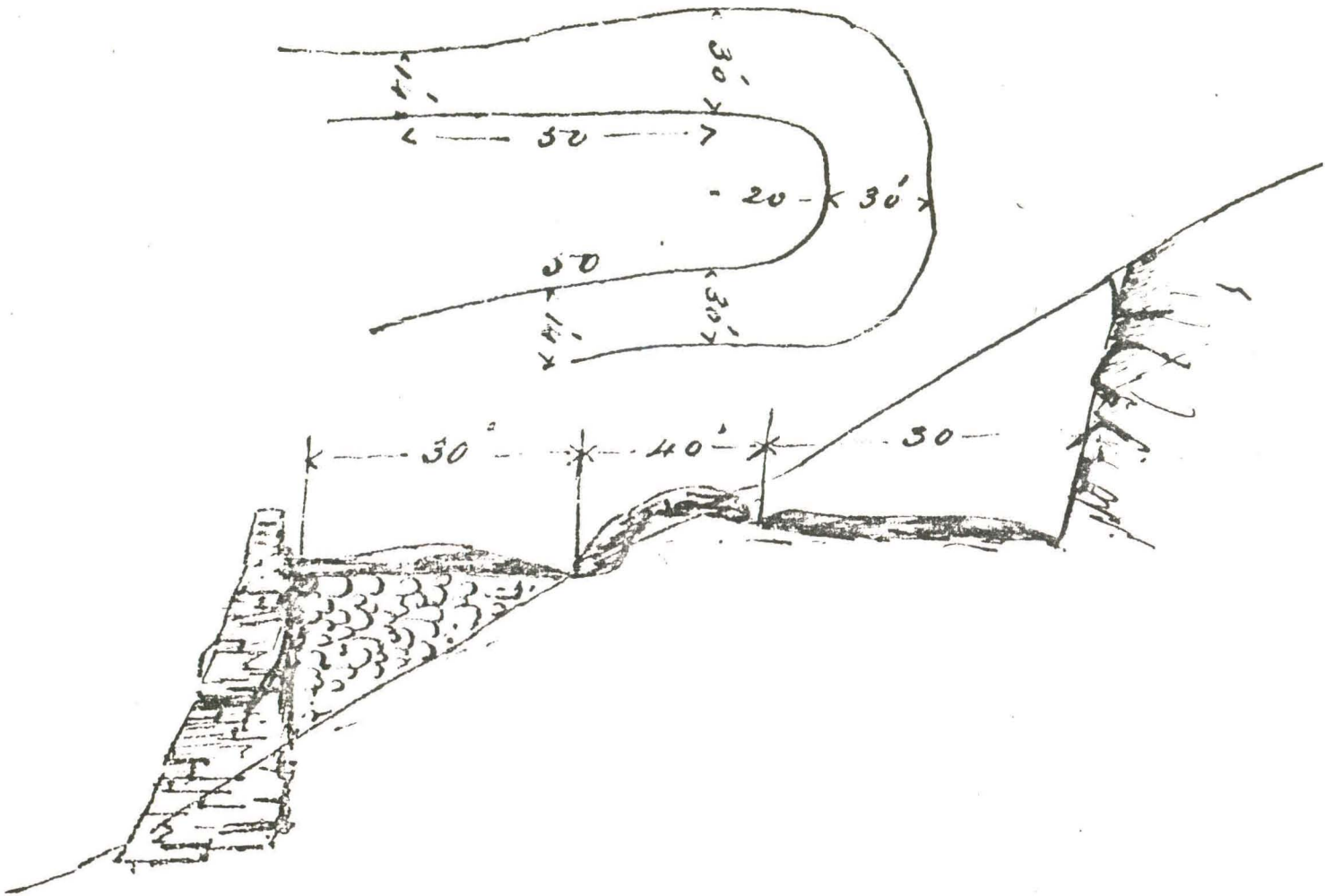
of the road, and secondly, they could call for tenders.⁵² The idea of calling for tenders must have upset Bain somewhat for he had stated that the work was ideally suited to convict labour. Most mountain passes and many roads had been completed by convicts since the building of the Montagu Pass. The convict system, introduced by the Secretary to the Government, John Montagu, was thus a tried and tested system. Now a tender system was being proposed and the building of the Zwartberg Pass would test whether it was effective and cost efficient or not. The Public Works Department would live to regret conceding to Fforde's suggestion and eventually resort to convict labour after John Tassie, the contractor, went bankrupt. The failure of the contractor also meant the failure of Fforde's "new system".⁵³

In the specifications for the construction of the Pass drawn up by W.M. Grier, Fforde's successor, it was stated by the Acting Chief Inspector of Public Works that the contractor would have to satisfy himself as to the accuracy of the gradients given.⁵⁴ For the purpose of aiding and instructing the would-be contractors, Bain's services were made available, as he visited Prince Albert with the specific purpose of showing them the ground to be covered. The gradient set was the maximum that would be allowed. The Plan and Section drawn by Bain was also not considered to show the exact contour of the ground. The

52 PWD 2/58 Letters Received, Government Departments : J. Fforde - Commissioner, 30/11/1880 (CAD).

53 *Ibid.*

54 PWD 1/547 Letters Despatched, General Series : W. Grier - Contractors, 17/12/1880, no. 201 (CAD).



25.i. Sketch by W. Grier giving dimensions of planned hairpin bends on the Zwartberg Pass.



25.ii. A view of one of the hairpin bends in the Zwartberg Pass.

contractor therefore had to satisfy himself as to the cross-section and how much excavation had to be undertaken.

Implementing Fford's proposal then, meant reducing the width of the road to not less than 14 feet (4,2 m). This measurement was to be taken from the foot of the cutting on the inner side of the road to the inside of the parapet wall or guard stones. The specifications were: (i) 14 feet (4,2 m) for not less than 5 miles (8 km), but after each quarter of a mile a passing space for wagons of 50 yards (45,7 m) in length had to be included; (ii) 18 feet (5,4 m) for 5 miles (8 km) with crossing places every quarter of a mile; and (iii) the remainder of the distance of four and three quarter miles to be 21 feet (6,4 m) wide.⁵⁵ The contractor was again expected to use his own discretion as the specifications did not state what widths the road was to be where.

Tenders were called for.⁵⁶ An interesting point to note is that in calling for tenders the principle of not necessarily accepting the lowest, or any tender was stated. However, financial considerations did hold sway as Tassie's tender, the lowest of eight, was accepted.

55 *Ibid.*

56 *Oudtshoorn Courant*, 21/12/1880 (advertisement).

The eight to tender were:

(i)	C. Sctuurmann(sic)	Claremont	£27 945
(ii)	A. Smith	Sea Point	£63 784
(iii)	J. West	Cape Town	£31 525
(iv)	W. Wright	Cape Town	£31 050
(v)	J. Tassie	139 mile NERy(sic)	£18 120
(vi)	W.K Stephens	Beaufort West	£24 500
(vii)	Hopgood & Goldswain	Port Elizabeth	£19 600
(viii)	J. Mackay	Port Elizabeth	£55 000 ⁵⁷

These same monetary considerations must have dulled clear warning bells about Tassie, since George Edmeades, the first one to sign as surety, backed out, no reasons given. This presentiment must surely have been even more clear when J and H Reid & Stephens (Attorneys, Notaries and Conveyancers of Cape Town) warned the Chief Inspector of the Public Works Department on 24 October 1881 to draw up a proper Notarial Deed, as the document they had presented would not help them in case of Tassie's insolvency.⁵⁸ Mr P.H. Louw had in the meanwhile stepped into the breach as John Tassie's surety.

5.4 Opposition to and debate on the Zwartberg Pass

5.4.1 Opposition

Although the proposed building of the Zwartberg Pass met with general consensus, there were those who opposed it for financial reasons.

According to George Rainier, most of those who were against the building of the Zwartberg Pass lived in the Meiring's

57 PWD 1/591 Letters Despatched, Secretary for Public Works : W. Grier - Commissioner, 3/3/1881, no. 85 (CAD).

58 PWD 1/315 Letters Received, Civil Commissioner and Resident Magistrates : J and H. Reid & Nephew - Chief Inspector, 24/10/1881 (CAD).

Poort/Klaarstroom district, or were on the Meiring's Poort to Beaufort road.⁵⁹ Klaarstroom was a settlement at the northern exit of Meiring's Poort. It had a wool-washery that was closed due to the Beaufort Railway Line taking its trade. Now the Zwartberg Pass posed a similar threat to the district. It is obvious, therefore, that various people stood to lose financially if some of the traditional traffic moving through this area was diverted to move across the Zwartberg Pass. Economic and local considerations thus prompted their opposition. It was also clear that traffic from Oudtshoorn to Prince Albert and Prince Albert Road Station would prefer to use the Zwartberg Pass, while traffic from Oudtshoorn bound for Beaufort would travel through Meiring's Poort. With the Pass, Prince Albert Road Station, as has been previously mentioned, would be 62 miles (99,7 km) from Oudtshoorn, while through Meiring's Poort it was 96 miles (154,4 km). Thus the statement by "Ox" in the *Oudtshoorn Courant*, that it did not make that much difference whether one travelled half way around a lemon horizontally or vertically, was "out" by 34 miles (54,7 km).⁶⁰ He apparently mistook the watermelon for a lemon! The distance from Oudtshoorn to Beaufort was approximately 120 miles (193 km or 20 hours travelling time)⁶¹ and Meiring's Poort would have been used on this route.

59 A. 11-81 Select Committee Report on the Prince Albert Loan Bill, May 1881, pp. 4,11 (CAD); *Oudtshoorn Courant*, 15/6/1880; *Beaufort Courier*, 1/8/1879.

60 *Oudtshoorn Courant*, 6/7/1880 (Letter to editor).

61 A. 11-'81 Select Committee Report on Prince Albert Loan Bill, p. 15 (CAD).

A number of those petitioning against the Pass (technically speaking their petition was in opposition to the Prince Albert Divisional Council's application to borrow £8 000 on loan for the pass) were fairly distinguished citizens. Two were members of the Prince Albert Divisional Council, Messrs Oosthuizen and Swanepoel, while Mr Melville was a Justice of the Peace, and Mr Wilsnack, a field-cornet. Mr M.C. Bantjes, who owned a large station between Klaarstroom and Beaufort, was questioned by the Select Committee. His statement that most petitioners who were opposed to the Pass were proprietors and ratepayers (only 33 of 97 petitioners were either); that the proposed road was twice as steep as the Montagu Pass (the Montagu Pass in fact had a gradient of 1 : 6 in places, while the steepest gradient for the proposed Zwartberg Pass was given to be 1 : 8); that the people of Oudtshoorn only contributed because the Prince Albert Divisional Council begged them to; and that there was not enough time given for opposition to the Pass to be expressed (they had at least four months's notice), proved incorrect and exaggerated. This, accompanied by other statements made, discredited Mr Bantjes as a witness before the Select Committee, for it can clearly be seen that he was promoting his own business interests.

A petition was also presented to the Prince Albert Council from members of Ward No 4, Traka, Achter Kredouw (sic) and from Prince Albert village itself.⁶² The inhabitants of Willowmore, then part of the division of Prince Albert also opposed the proposed Pass for economic reasons. They stated that they did not want landed

62 Beaufort Courier, 18/10/1881.

property in one division being pledged for the payment of improvements to be made in another.⁶³

5.4.2 The communication debate

The most pressing consideration as to whether the Zwartberg Pass should be built or not, was related to the 'call' by the inhabitants of the Little Karoo and surrounding areas for a railway link. In his survey and report on the proposed Pass, Thomas Bain strongly recommended that it be built. He claimed it would be a major feeder to the Beaufort West railway. However, Bain did state that the people of Oudtshoorn were expecting a branch railway from Beaufort West to Klaarstroom, and that they were strongly agitating for a railway link from Mount Stewart to Oudtshoorn through Swanepoel's Poort and Willowmore. If this idea was being entertained, stated Bain, and it did in fact become a reality, it would then not be necessary to build the Zwartberg Pass as traffic and trade would go eastward.⁶⁴

It was against this statement that the people and the Divisional Council of Oudtshoorn strongly protested. A number of interesting questions arise: (i) was it perhaps to ensure that the traffic and trade did not in fact all go eastward, but that Oudtshoorn traffic and trade be directed westward to the Western Province, that helped promote the Zwartberg Pass? and (ii) was it not precisely for this reason as well that the railway link to the

63 PWD 2/161 Letters Received, Sundry Committees : B. Stegmann - Colonial Secretary, 11/4/1881 (CAD).

64 PWD 1/280 Letters Received, Road and Building Works officials: T. Bain - J.Fforde, 24/7/1879 (CAD).

Midlands took so long to be built? This will never be clear, but what does become apparent is that the interests of Oudtshoorn and the Little Karoo were sacrificed on the altar of other railway development. The holistic approach of the Cape Colony and "diamonds first" with regard to railway development and the geographical direction it took was evident here. The issue of agricultural interests being pitted against mercantile interests, the latter gaining the ascendancy, also appears here, and this was a reflection of what in fact was happening in the wider railway context in the Cape Colony.

On 29 June 1880 the Cape Premier shelved a motion that the House go into committee on the matter of money to be expended on the Zwartberg Pass, as notice had been given that day of the construction of a possible railway line from Mossel Bay to Klipplaat.⁶⁵ His conclusion was the same as Bain's, that in such an event it would not be necessary to construct the Zwartberg Pass.

5.5 Railway Development

As has been noted in chapter 2, Cape Town was cut off from the interior by sand and mountains. For the early migrant farmers it was a market difficult to reach. The pioneer paths and wagon tracks into the interior helped farmers somewhat, but until well into the nineteenth century subsistence farming was practised by most farmers. Markets were virtually inaccessible. Thus it became vitally important for the communication network to be expanded

65 *Oudtshoorn Courant*, 29/6/1880.

and revolutionized. John Montagu's road, mountain pass and convict labour system ushered in an economic and material culture revolution to the Cape Colony.

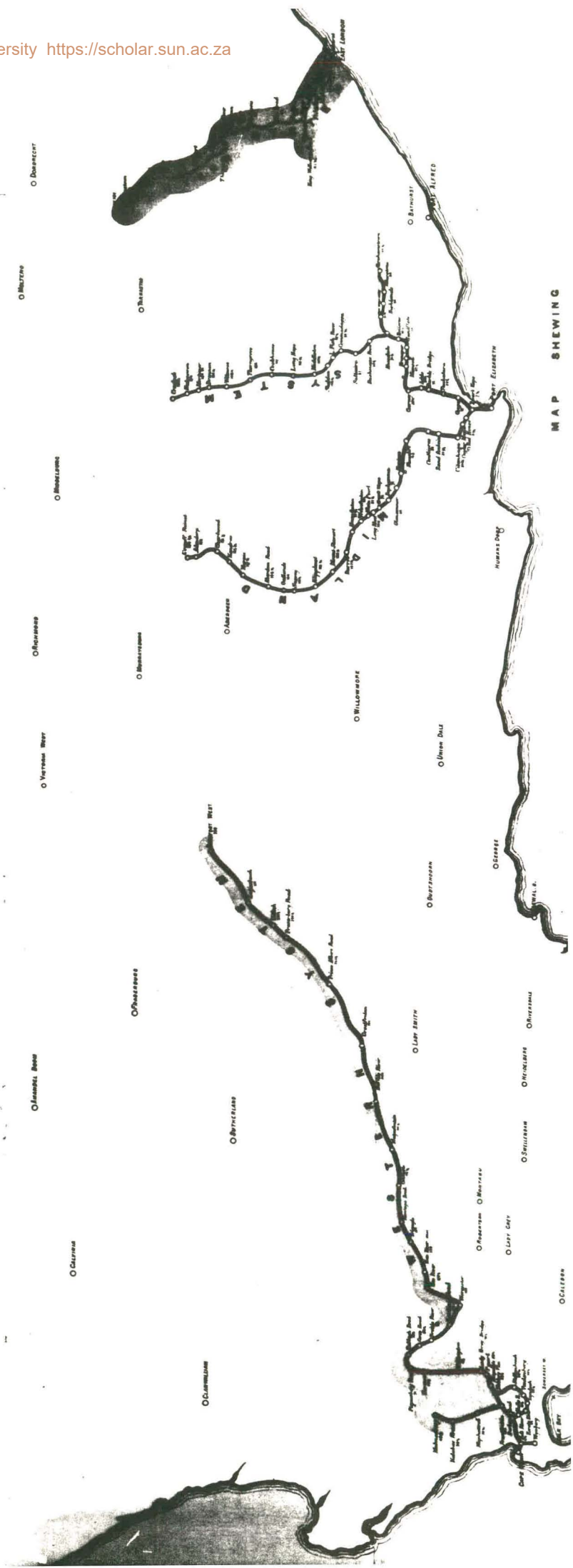
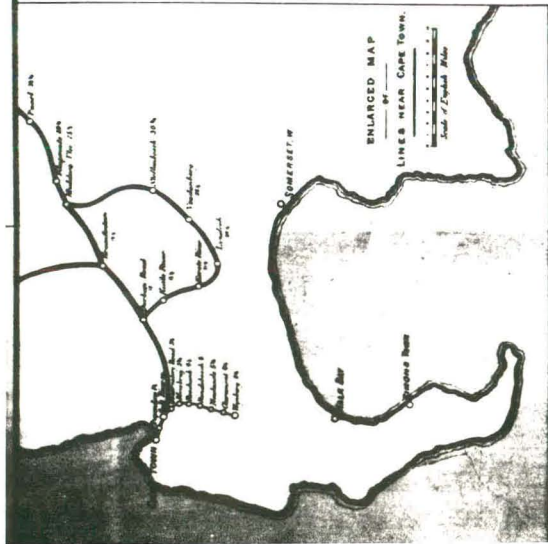
The mechanical and industrial revolution, however, soon by-passed Montagu's innovation as the railway age caught up with the Cape Colony in 1859.⁶⁶ It was not until the early 20th Century that railway transport eclipsed road transport. The first railway line completed was a two-mile stretch between Durban and the Point, opened on 26 June 1860. At this time the Cape Town to Eerste River line was under construction and was opened on 13 February 1862. The fifty seven mile Cape Town to Wellington line was completed by the end of 1863.⁶⁷ The Cape Town Railway and Dock Company, established in 1853, of which William Brounger was the engineer, soon ran foul of the 1860s Depression. Eventually in July 1872 the Cape government bought the Wellington railway line from the Company for £771 458 and the Cape Government Railways started.⁶⁸ In July 1873 a Railway Department was formed under Brounger with many young engineers emigrating from England to bolster this fledgling Department. The Wellington and Wynberg railways, already in existence, had been constructed using the English gauge of four feet eight-and-one-half inches. However, it again became a matter of cost as the Cape Parliament decided that on all new lines the standard gauge was to be three feet six

66 J. Burman : *Early railway at the Cape*, p. 11-15.

67 *Lines of communication - The story of 300 years of transport in South Africa*. SAR (Pamphlet).

68 J. Burman : *Early railways at the Cape*, p. 32.

26. "Map showing Railways of Cape Colony open in 1882".



inches. The result was an effective saving on costs, but ultimately twentieth century South Africa would inherit a railway communication system that could not carry high speed train services.⁶⁹ This has been a great handicap to trade in South Africa in the twentieth century as the speed on the three foot six inch gauge is only half of what it could be on a four foot eight-and-a-half inch gauge.

The Cape government decided to work on railway links to the diamond fields from the ports of Cape Town and East London simultaneously. Thus three divisions or railway line development systems were created: the Western System, the Midlands System and the Eastern System. Later a Northern System was added. The development of these systems excluded the Little Karoo, the Southern Cape and the ports of Port Beaufort, Mossel Bay, Knysna and Plettenberg Bay for at least two decades. When one looks at the map showing the railways of the Cape Colony open in 1882⁷⁰, a striking feature is the tentacle-like manner in which the railways reach into the interior from Cape Town, Port Elizabeth and East London. The area between and below an imaginary arc drawn from Somerset West, Robertson, Ladismith, Willowmore to Humansdorp is glaringly barren. It is therefore not without some justification that the inhabitants of the Southern Cape and adjacent regions felt 'badly done by' with regard to the lack of railway links being made available to them. It is obvious that

69 H.F. Varian : *Some African milestones*, p. 35.

70 G. 33-'82 Report of the General Manager of Railways for the year 1881, Appendix, p. 96 (CAD). See also alongside for map.

the microscopic world of the Little Karoo was detrimentally affected. The Zwartberg Pass and other road entrances and exits to this region sought to redress this imbalance, eventually, however, in the early twentieth century having to succede their full potential and usage to railway transportation.

The *Oudtshoorn Courant* and *Mossel Bay Advertiser* and, to a much lesser extent, the *Beaufort Courier* and *The George and Knysna Herald*, followed the railway debate as it affected their regions and the railway development of the Colony in general, in vivid and emotional detail for a period of almost ten years, this from the demand for various surveys in 1879, to comments made at the banquet on the occasion of the official opening of the Zwartberg Pass in January 1888.⁷¹ The initial close co-operation and united aim and sentiments expressed, as reflected mainly in the *Oudtshoorn Courant* and *Mossel Bay Advertiser*, make interesting reading.⁷² This co-operation soon degenerated into regionalism, self-interest, name-calling and bickering as the years passed, and as it became apparent that Oudtshoorn, the Little Karoo and

71 *Oudtshoorn Courant*, 16/7/1879, 23/7/1879, 27/1/1880, 3/2/1880, 23/3/1880, 27/4/1880, 8/6/1880, 15/6/1880, 29/6/1880, 14/6/1881, 21/6/1881, 27/9/1881, 7/3/1882, 4/7/1882, 3/7/1883, 25/9/1884, 7/5/1885, 21/5/1885, 11/2/1886, 18/2/1886, 18/3/1886, 25/3/1886, 29/4/1886, 7/7/1887, 14/7/1887, 15/9/1887, 10/11/1887 and 18/1/1888; *Mossel Bay Advertiser*, 6/8/1879, 20/8/1879, 27/8/1879, 3/9/1879, 29/10/1879, 12/11/1879, 19/11/1879, 4/2/1880, 25/2/1880, 3/3/1880, 31/3/1880, 9/6/1880, 7/7/1880, 14/7/1880, 1/9/1880, 6/10/1880, 15/6/1881, 20/7/1881, 20/5/1885, 17/1/1886, 31/3/1886 and 6/7/1886; *Beaufort Courier*, 10/2/1880 and 20/5/1880; *The George and Knysna Herald*, 11/1/1888 and 18/1/1888.

72 *Oudtshoorn Courant*, 31/3/1880 and 7/3/1882; *Mossel Bay Advertiser*, 25/2/1880, 31/3/1880 and 31/3/1886.

the Southern Cape were not getting the railway link they were anticipating.⁷³

The Railway Reports⁷⁴ give impressive detail on the workings and progress of the various railway systems. Statistics concerning the tonnage (mainly goods, minerals and livestock) carried by each system, the number of passengers utilizing the lines, the miles completed and those under construction for the specific years, and the gross earnings per average mile of line open on each system are but some of those given. What is striking in an analysis of these statistics is that it was only the Midlands line that showed a tonnage increase in goods traffic for 1883 as compared with 1882.⁷⁵ (From 141 704 tons to 154 170 tons, while the Western line dropped by 38 000 tons and the Eastern line by some 28 000 tons.) It seems that the Depression was not as keenly felt in this area of the Southern Cape and Midlands. This is

73 *Oudtshoorn Courant*, 18/2/1886. (Letter from "J.K.": "United we stand, divided we shall not stand.") 11/2, 18/3/1886 and 10/11/1887; PWD 2/761 Memoranda and Reports on Parliamentary Motions : Report of meeting, Ladysmith, 14/4/1888; *Mossel Bay Advertiser*, 31/3/1880 and 1/9/1880; *The Oudtshoorn Courant*, 1/4/1886.

74 G. 26-'79 Report on the Progress and Working of the Railways of the Colony, during 1878; G. 46-'84 Reports on the Construction and Progress of the several Railways during the year 1883; G. 43-'80 Reports on the progress and working of the several railways of the colony for the year 1879; G. 60-'81 Reports on the construction and progress, etc, of the several railways of the colony, for the year 1880; G. 33-'82 Report of the General Manager of Railways for the year 1881; G. 47-'84 Report of the General Manager of Railways for the year 1883; G. 61-'83 Reports on the Construction and Progress, etc, of the several railways of the Colony for the year 1882; G. 27-'89 Report of the General Manager of Railways for the Year 1888 (CAD).

75 G. 47-'84 Report of the General Manager of Railways for the year 1883, p.33 (CAD).

further emphasized by the fact that the value of goods transported on the Midlands line increased during this period, bypassing the earnings of the Western line in 1879 and increasing its lead right through to 1888. It thus appears that while the recession of the 1880s hit the Western system (calculated here only on earnings from goods transported) from 1884, the Midlands line, although stabilizing as far as the number of passengers transported was concerned, increased her goods earnings lead.⁷⁶ This was surely further justification for a branch line linking Oudtshoorn to the Midlands system.

In addition, Oudtshoorn and district was known as the "pantry of the Colony"⁷⁷ by virtue of the fact that they produced cereals, vegetables and fruit in enviable quantities, as well as being well-known and highly ranked in agricultural potential. An analysis of the 1891 census statistics further reveals that Oudtshoorn ranked 24th in the colony as far as numbers of oxen were concerned; was 1st in ostrich numbers - 16,33 ostriches to the square mile as opposed to 5,8 in the next most dense district; was the 3rd highest wheat producer, the 4th highest sweet potato producer, the 2nd highest pumpkin producer, the 9th highest red wine producer, the 4th highest brandy producer, the highest vinegar producer, the 2nd highest raisin producer, the highest dried fruit producer, the 6th highest hanepoot vinestock producer; and had 11 750 morgen out of the Colony's total 137 160

76 G. 27-'89 Report of the General Manager of the Railways for the year 1888, pp. 43-45 (CAD).

77 *Oudtshoorn Courant*, 25/9/1884.

morgen under irrigation.⁷⁸

Oudtshoorn and her neighbouring districts in the Southern Cape also contributed one eighth of the general revenue of the colony⁷⁹ as well as being home to a significant proportion of the Cape's population.⁸⁰ Numerous surveys were made for a rail link to and through this Southern Cape area between 1879 and 1892.⁸¹

78 G. 91-'83 Reports by Civil Commissioners and Resident Magistrates and District Surgeons for the year ended 31 December 1882 (CAD); *Oudtshoorn Courant*, 27/1/1880; G. 6-'92 Census 1891, pp. 434-463.

79 *Oudtshoorn Courant*, 7/5/1885.

80 *Mossel Bay Advertiser*, 20/5/1885 (1875 census statistics). 48,005 people in the districts of Oudtshoorn, George, Mossel Bay, Riversdale and Knysna. The district of Oudtshoorn itself had a population of 15 000

81 G. 45D-'80 Survey of route from Mossel Bay to Oudtshoorn via George and Montagu Pass : E.W. Young - W.G. Bronger, 1/5/1880, pp. 1-7; G. 45F-'80 Klipplaat and Oudtshoorn Junction Line Survey : W. Willcox - W.G. Bronger, 14/5/1880, pp. 1-5; G. 45K-'80 Map of proposed Mossel Bay and Oudtshoorn Railway via Attaquas Kloof and Montagu Pass: E.W. Young - W.G. Bronger, May 1880; G. 45C-'80 Report of Inspection for Proposed Railway line between Mossel Bay and Oudtshoorn : E.W. Young - W.G. Bronger, 27/4/1880, pp. 1-5; G. 61-'81 Reports of Inspections made to ascertain the best lines of possible railway extension in the Colony - Mossel Bay and Oudtshoorn Railway : E.W. Young - W.G. Bronger, 23/11/1880, pp. 1-3; G. 60-'81 Reports on the Construction and Progress, etc., of the several Railways of the Colony, for the year 1880 : W.G. Bronger - Commissioner, 21/3/1881, pp. 1-4; G. 92-'82 Flying survey on the possible Montagu and Oudtshoorn line : Parliamentary Return, 6/8/1881, pp. 1-9; G. 2-'88 Report of a Flying Survey for a railway line from Oudtshoorn to Beaufort West, via Towerwater's Poort : A. Grant-Dalton - Chief Engineer, 1/10/1887, pp. 1 and 4; G. 40-'93 Reports of a Survey for a line from Constable to Caledon Kloof, from Oudtshoorn via George to Mossel Bay, from Mossel Bay via George to Oudtshoorn, A. Grant-Dalton - Chief Engineer, 8/3/1893, pp. 1-36 (CAD). All these surveys are also carried in the newspapers of the time.

One survey, conducted by the Cape Government Railways in 1882, ran through Cogman's Kloof. However, as the proposed route followed the line Thomas Bain had chosen for his road, ox-wagon transport drivers led an outcry. The Dutch Reformed Church in the area also protested.⁸²

The Cape Central Railways Limited (CCR), a private company formed in August 1883, also began looking at the prospect of constructing a line from the Western System eastward through the Little Karoo and ultimately linking up with the Midlands line at Klipplaat or Mount Stewart. In 1887 the company started on the line from Worcester to Ashton. However, the company soon ran into financial difficulties mainly as a result of the fact that transport drivers were undercutting railway prices. Shortly after the company became insolvent in 1892, a new company, the New Cape Central Railways (N.C.C.R.) was formed. This company decided to abandon the Little Karoo line and go eastward along the coast. In April 1899 the Ashton to Swellendam line was opened; by 1902 Heidelberg had been reached, by 1903 Riversdale, and by 1906 Mossel Bay. While the line to Mossel Bay was being built, the Cape Government Railways (C.G.R.) had been constructing a line from Mossel Bay to George, ultimately wishing to extend this line to Port Elizabeth. The C.G.R. thus found itself with an isolated strip of line which they handed over to the N.C.C.R. who had by then started work on the Oudtshoorn line from George.

82 J. Burman : *Early railways of the Cape*, p. 115.

While the N.C.C.R. were busy working on the line from Ashton to Mossel Bay, another private company, the Grand Junction Railway Company, was working on the line from Klipplaat to Mossel Bay, via Oudtshoorn and George, which they had started in 1896. This company did not last long, ceding the building of this line to the government in 1898. In March 1904 the Oudtshoorn line - which crossed the Zwartberg range via Towerwater Kloof - was eventually opened. The George to Oudtshoorn line [45 miles (72,4km) long] was finally completed in 1912/1913, thirty three years after the first serious agitation for it was launched. Oudtshoorn and the Little Karoo had railway links with the coast and the interior.⁸³

Thus during the two decades between 1875 and 1895 it is clear that the construction of railway lines in South Africa was almost entirely influenced by the diamond and gold discoveries.⁸⁴ Branch lines for the full realization of agricultural and pastoral possibilities had become a secondary issue and were only worked on after 1896. Once the Little Karoo had her branch lines and her links both eastward and westward the Zwartberg Pass would lose traffic.

5.6 Prince Albert and Oudtshoorn and their contribution to the Zwartberg Pass

Prince Albert, named after Queen Victoria's consort, was established in 1842 on the land that Zacharias de Beer had built

83 J. Burman : *Early railways at the Cape*, pp. 115-120; A.R.E. Burton : *Cape Colony for the Settler*, pp. 20-24.

84 See table in Appendix 3.



27.i. A 19th Century view of Prince Albert with the Zwartberg Mountains in the far background.



27.ii. A 20th Century view from approximately the same position

his farm "Kweekvallei" on in the early 1760s. A pastoral paradise, the Prince Albert division is well suited for small stock, the principal products of the area being wool, mohair, butter, wheat, oathay, raisins and fruit. With an average rainfall of 6,7 inches (17 cm),⁸⁵ which is supplemented by the perennial Zwartberg Mountain streams, the area has justifiably been called "The Prince Charming of the Karoo".⁸⁶ It is an oasis in the desert.

The potential that the opening of the Zwartberg Pass promised was realized by the Prince Albert Divisional Council. Ideally situated to offer a gateway for the produce of the rich Cango Valley and Oudtshoorn Divisions to the Karoo and the Western Railway System, as well as being well situated to offer a convenient stopover and refreshment point for Little Karoo travellers on their further journey to the Prince Albert Road Railway Station, the Civil Commissioners and Resident Magistrate of the Divisional Council, Mr George Rainier, and the inhabitants of Prince Albert petitioned the Cape Government for a road over the Zwartberg.⁸⁷ Once the pass was built, Prince Albert, only nineteen hours from Cape Town, would now be six hours from

85 A.R.E. Burton : *Cape Colony To-Day*, p. 254; D. Van Pletsen: Prince Albert in the Great Karoo (*South African Panorama*, April 1974, p. 15), gives the figures 75-125 mm.

86 L. Keet : Platteland Portrait - Prince Albert The Prince Charming of the Karoo (*Personality*, May 1989, p. 62-63); D. Van Pletsen : Prince Albert in the Great Karoo (*South African Panorama*, April 1974); *Die Burger*, 1/3/1978 (Weggesteek, dog interessant).

87 A. 39-'79 Petition of the Inhabitants of the Village of Prince Albert : G. Rainier - Parliament, pp. 1-2 (CAD); *Beaufort Courier*, 21/2/1879.



28. A view of the rock profile and the road just outside Prince Albert.

Oudtshoorn,⁸⁸ and thus would offer Southern Cape and Karoo travellers a considerable saving in time and effort.

The enthusiasm and effort of George Rainier was soon expressed in practice as he channeled the Divisional Council's convict work gang into preparing the way. By 25 July 1879 a good wagon road had been made to the foot of the gorge entering the Zwartberg range from the northern side, while the bridle path they were working on ran approximately a further five miles (8 km) up the ascent.⁸⁹ A special meeting of the Prince Albert Divisional Council on 16 August 1879 unanimously resolved to contribute £5 000 towards the building of the pass,⁹⁰ a further expression of their desire to see the work done.

The Civil Commissioner of Oudtshoorn was expected to show the same enthusiasm that Rainier exhibited.⁹¹ It is also evident that the Prince Albert Divisional Council did much to spur their southerly neighbours on to have the pass built. They initially tried by indicating that Oudtshoorn would in fact derive the most benefit from the pass, and in this light they were encouraged to increase their promised contribution of £2 000. Initially the Oudtshoorn Divisional Council resolved, on 12 August 1879, to contribute £1 500. They took exception to Thomas Bain not having

88 *Oudtshoorn Courant*, 9/6/1887.

89 *Beaufort Courier*, 25/7/1879.

90 A. 11-'81 Select Committee Report on the Prince Albert Loan Bill, Appendix B (CAD).

91 *Beaufort Courier*, 27/6/1879.

made provision in his Zwartberg survey report for a road from the southern base of the proposed pass to Oudtshoorn. On 13 October 1880 the Oudtshoorn Divisional Council resolved to contribute £2 000 in three equal annual installments of £666 - 13s - 4d. They had also offered to contribute £3 000 in four instalments of £750 per annum if the road through the Congo Poort was included.⁹²

The Oudtshoorn Divisional Council replied that Prince Albert would derive the most benefit as they had only a short section of road to maintain, while besides their section of pass, they (Oudtshoorn) had a rugged thirty-mile (53 km) section of road from the southern base of the pass, through Congo Poort to Oudtshoorn. They also indicated that they viewed the Zwartberg Pass project as a work of national importance and therefore one the Government should significantly contribute towards. They further argued that they annually paid large amounts to the treasury, deriving very little by way of Government works in return. They concluded by stating that the road through the Poort ought to be taken as part and parcel of the road over the mountain and therefore be included in the total cost estimate.⁹³

By May 1880 it was clear to the Prince Albert Divisional Council that their southerly neighbours would not budge on this issue. Accordingly on 5 May 1880 they resolved to raise their own

92 PWD 2/422 Letters Despatched, Chief Inspector : Oudtshoorn D.C. - Commissioner, 17/1/1881; PWD 2/145 Letters Received, D.C's: Oudtshoorn D.C. - Commissioner (CAD).

93 *Beaufort Courier*, 19/9/1879 and 31/10/1879.

contribution from £5 000 to £8 000, an indication of their earnest desire to see the project completed. On 10 July 1880 the Prince Albert Divisional Council resolved to request Parliament to authorize them to raise the £8 000 on loan.⁹⁴ This being granted, advertisements for tenders willing to advance all or part of the first instalment of £2 700 were called for.⁹⁵

After three years, as it became apparent that economic conditions in the Cape had deteriorated, the Prince Albert Divisional Council, the Board of Management and the ratepayers petitioned the Government through Mr Pett, the new Civil Commissioner and Resident Magistrate, for a reduction of their contribution from £8 000 to £5 000. Their argument was that the road would benefit the area south of the Zwartberg range and the inland divisions tremendously. It was therefore a road of public more than of local undertaking, as it formed a feeder to the Western Railway, and a line of communication to the Mossel Bay seaboard.⁹⁶ This request was not granted.

Thomas Bain's comments that the Oudtshoorn division's market was essentially eastern; that the Government, Prince Albert and Oudtshoorn should each contribute one third to the building of the Pass; and that the Zwartberg Pass would hardly be necessary

94 A. 11-'81 Select Committee Report on the Prince Albert Loan Bill, pp. 1-27 (CAD).

95 *Oudtshoorn Courant*, 2/8/1881, 29/9/1881 and 4/10/1881. *Beaufort Courier*, 26/7/1881.

96 PWD 2/11/49 (01.417) : Mr Pett - Commissioner, 14/11/1884 (CAD).

if the proposed railway link from Oudtshoorn to Mount Stewart on the Midlands line was provided, met with vehement Oudtshoorn reaction. The people of Oudtshoorn were also not happy that he had not made a survey from the foot of the pass to Oudtshoorn itself.⁹⁷ The remark by Bain concerning the railway link to the Midlands and its effect on the utility of the Zwartberg Pass had a prophetic ring to it, for once this link was provided in 1907, the Zwartberg Pass was relegated to being a regional link between two towns. It would never again be utilized to its full potential. At that time, however, it was clear that the Divisional Council and people of Oudtshoorn were afraid that the building of the Zwartberg Pass would jeopardize a possible railway link to the east, and they were also anticipating that a possible railway link could jeopardize the building of the Zwartberg Pass. They clearly wanted both, not one or the other.

The division of Oudtshoorn was a rich division.⁹⁸ Besides producing goods to the value of £305 350 per annum and having landed property valued at nearly £1 million, Oudtshoorn itself was a thriving village. It had four churches, the Dutch Reformed Church which was able to seat 3 000 having just been built. With a population of 15 000 inhabitants in addition to the extensive commercial dealings she was involved in, Oudtshoorn was one of

97 PWD 2/27 Letters Received, Chief Inspector : J. Fforde - Commissioner, 28/7/1879, no. 373, T. Bain - Chief Inspector, 2/10/1879; PWD 2/145 Letters Received, Divisional Councils : D.C. Oudtshoorn - Commissioner, 2/9/1879 and 17/9/1879 (CAD).

98 G. McCann : *The Ostrich bounces back (Your Garden Route Companion, Volume 3, 1990)*; Anon.: *Oudtshoorn and its farms*, p. 21.

the most important divisions in the colony.⁹⁹ The Oudtshoorn Division was approximately 100 miles (160,9 km) in length, extending from the district of Uniondale in the east to the district of Ladismith in the west. Breadth-wise the division ranged between 35 to 60 miles (56,3 to 96,5 km), the area in total equalling 1 781 square miles. There were numerous exits and entrances to the division from the south, east and west, the flood-susceptible Meiring's Poort, however, being the main link from this division to the northern and north eastern markets.

Agriculturally and commercially it was therefore of significant importance to Oudtshoorn and to the colony to have another road and/or railway link northward. The diamonds of Kimberley, however, proved more glittering than the fruit of the soil. The Zwartberg Pass provided a more direct market link to Kimberley, and as railway development was also pointed in this direction, the pass was the consolation prize Oudtshoorn won, albeit by kind favour of Prince Albert.

5.7 John Tassie

John Tassie's tender of £18 120 for the building of the Zwartberg Pass was successful. He was chosen to implement the "new system" of James Fforde, the former Chief Inspector of Public Works. This system was to test whether passes and/or roads could not be built more economically by tender than by convict labour. According to the contract he would finish the pass in eighteen months by 31

99 A. 63-'80 Petition of Inhabitants of Oudtshoorn, June 1880, pp. 1-2; A. 56-'79 Petition of Landed Proprietors of Oudtshoorn, 19/7/1879, pp. 1-3 (CAD).

March 1883.

It has already been noted that Tassie had difficulty in securing a surety for the work he was to undertake. In addition to gaining the Zwartberg Pass contract, Tassie had been given the Olifants River Bridge works to complete. The cash flow problem Tassie experienced on the Olifants Bridge works was another clear indication to the Public Works Department that he was not really the right man for the job. On that work he was granted an advance of £600 on security of his plant i.e. a road plant.¹⁰⁰

Starting in October 1881 the progress that was made in the six months up to and including March 1882 was an indication of things to come. Only two miles 45 chains of roadway had been laid, and not a single culvert had been made up to that time. As Tassie needed payment as he progressed on the building of the pass, and because of the fact that the nature of the work ranged from light, to ordinary to heavy, it was decided that he should be paid according to the work completed. He was to be paid £6 -3s - ½d. per yard for light work; 14s per yard for ordinary work; and 36s per yard for heavy work.¹⁰¹ By June Tassie had not progressed any further. Up to this stage he had received £2 000 for work completed, the full share, according to T. Bain, of what

100 PWD 1/548 Letters Despatched, General Series : W.Grier - J.Tassie, 15/9/1881, p. 277. The tender for the Olifants River Bridge works was £5 501 -0s -9d (CAD).

101 PWD 1/293 Letters Received, Road and Building Works Officials: W. Stephens - W. Grier, 20/3/1882, T. Bain - W. Grier, 26/3/1882 (CAD).

was due to him.¹⁰² From June to December 1882 the reports on the progress of the work were all unfavourable.¹⁰³

Tassie had also found himself unequal to the task of building the zig-zag section, sub-contracting this to J. Manuel, a veteran road builder and supervisor. He also required help in removing a rock slip. His request for tools was not granted as he did not reply to a query on how he intended paying for them.¹⁰⁴ It is therefore not surprising that his pleas for advances of £1 000 and then £500 fell on deaf ears.¹⁰⁵

In fairness to Tassie, one must mention that he did have more than his fair share of labour problems. The passage of the one

102 PWD 1/293 Letters Received, Road and Building Works Officials: T. Bain - W. Grier, 5/6/1882 (CAD).

103 PWD 1/549 Letters Despatched, General Series : W. Grier - J. Tassie, 16/6/1882, p. 60; PWD 1/293 Letters Received, Road and Building Works Officials : T. Bain - Chief Inspector, 4/7/1882; PWD 1/549 Letters Despatched, General Series : W. Grier - J. Tassie, 8/7/1882, pp. 141-143; PWD 1/293 Letters Received, Road and Building Works Officials: W. Stephens - T. Bain, 17/7/1882; PWD 1/549 Letters Despatched, General Series : W. Grier - J. Tassie, 29/7/1882, p. 234; PWD 1/298 Letters Received, Road and Building Works Officials : W. Stephens - T. Bain, 16/10/1882; PWD 2/327 Letters Received, Specified Subjects : W. Grier - Commissioner, 21/11/1882; PWD 1/593 Letters Despatched, Secretary for Public Works : W. Grier - Commissioner, 21/11/1882; PWD 1/298 Letters Received, Road and Building Works Officials : W. Stephens - Chief Inspector, 8/12/1882, W. Stephens - T. Bain, 13/12/1882; PWD 1/549 Letters Despatched, General Series : W. Grier - J. Tassie, 21/12/1882, p. 644 (CAD).

104 PWD 1/549 Letters Despatched, General Series : A. English - J. Tassie, 29/9/1882, p. 360 (CAD).

105 PWD 1/252 Letters Received, Specified Subjects : W. Grier - Commissioner, 30/10/1882, no. 1/533; J. Tassie - G. Rainier, 21/10/1882 (CAD).

hundred and one Delagoa Bay labourers Tassie acquired cost him £404.¹⁰⁶ By mid-January twenty of these labourers had already deserted.¹⁰⁷ The remaining labourers were soon supplemented by forty Fingoes,¹⁰⁸ but by the end of May, twenty-two of his labour force had again deserted.¹⁰⁹ Towards the end of June 1882 all of the original Delagoa Bay work force had left the Zwartberg works.¹¹⁰ By July only fourteen men were at work on the Prince Albert side of the pass while there had been forty five the previous month. T. Bain refuted Tassie's claim that labour was hard to come by saying that Mr J. Manuel had easily got sixty men, that he could have recruited double the number, and that labourers could be acquired from the Bokkeveld Pass.¹¹¹ Tassie had claimed that he was looking everywhere, that he was also inquiring at mission stations for labourers, and that some of the Bristol men he had procured were worth five "ordinary niggers" in so far as some work was concerned.¹¹²

106 PWD 1/252 Letters Received, Secretary for Public Works : H. McNaughton - Chief Inspector, 28/11/1881, no. 4/570. (CAD).

107 *Oudtshoorn Courant*, 17/1/1882.

108 *Oudtshoorn Courant*, 7/2/1882.

109 PWD 1/293 Letters Received, Road and Building Works Officials: T. Bain - Acting Chief Inspector, 29/5/1882, no. 821 (CAD).

110 PWD 1/293 Letters Received, Road and Building Works Officials: J. Tassie - W. Grier, 26/6/1882 (CAD).

111 PWD 1/293 Letters Recieved, Road and Building Works Officials: T. Bain - Chief Inspector, 4/7/1882 (CAD).

112 PWD 1/293 Letters Received, Road and Building Works Officials: J. Tassie - W. Grier, 26/6/1882 (CAD).

W. Stephens, the Public Works Department's man on site to keep an eye on the progress of the works and to look after government interests, predicted in July that "Tassie (would) ... never make the Zwartberg Mountain Pass".¹¹³ By December 1882 the situation had not improved¹¹⁴ and Stephen's prediction was fulfilled by 4 January 1883 when all hands had stopped work.

It was most likely the lack of a system of discipline, that was inherent in the convict system, that militated against keeping labourers on a physically demanding work such as the Zwartberg Pass. Not only was the work hard, but the cold was extreme. Tassie's methods of payment,¹¹⁵ his periodic absences from the work,¹¹⁶ his favouring of his in-laws in their business endeavours,¹¹⁷ the extreme illness of his young son,¹¹⁸ and his extremely low quote,¹¹⁹ which gave him little financial leverage to acquire and keep labourers, all added up to a lost cause.

113 PWD 1/293 Letters Received, Road and Building Works Officials: W. Stephens - T. Bain, 17/7/1882 (CAD).

114 PWD 1/298 Letters Received, Road and Building Works Officials: W. Stephens - T. Bain, 13/12/1882 (CAD).

115 PWD 1/298 Letters Received, Road and Building Works Officials: W. Stephens - T. Bain, 16/10/1882 (CAD).

116 PWD 1/298 Letters Received, Road and Building Works Officials : C. Hicken - W. Stephens, 6/12/1882 (CAD).

117 PWD 1/293 Letters Received, Road and Building Works Officials : T. Bain - Chief Inspector, 4/7/1882 (CAD).

118 PWD 1/253 Letters Received, Secretary for Public Works : J. Tassie - T. Bain, 24/2/1882 (CAD).

119 PWD 2/327 Letters Received, Specified Subjects : W. Grier - Commissioner, 21/11/1882 (CAD).

By the time John Tassie had stopped work on the Zwartberg Pass and had surrendered his estate, he had completed just over 3,48 (5,6 km) of the total of fourteen and three quarters miles of road on the Zwartberg Pass¹²⁰ for which he had been paid £4 098 -17s -10d.¹²¹ (This meant that from the contract price of £18 120 there was a balance of £14 210 -2s -2d to finish the pass.) Tassie's insolvency was a reflection of the times. The economic depression that had set in during the 1880s had led to many insolvencies,¹²² none greater for the Little Karoo than that of George Edmeades.¹²³

George Mason Edmeades was by a long way the largest landed proprietor and stockholder in the Little Karoo. He owned 253 erven in Oudtshoorn alone. Many of these erven had buildings on them which comprised more than half of the town of Oudtshoorn itself. He owned an extensive auctioneering business and many valuable farms in the Little Karoo. His insolvency most certainly was detrimental to the commercial prosperity of the Oudtshoorn

120 PWD 1/298 Letters Received, Road and Building Works Officials: W. Stephens - T. Bain, 13/12/1882 (CAD); H. Marincowitz : *Swartberg Pass*, p. 5; B. Erasmus : Road passes of the Little Karoo (*The Motorist*, Third Quarter, 1986); S. Van Waart : *Swartberg en sy mense*, p. 13, is of course way out with the 9 miles she mentions.

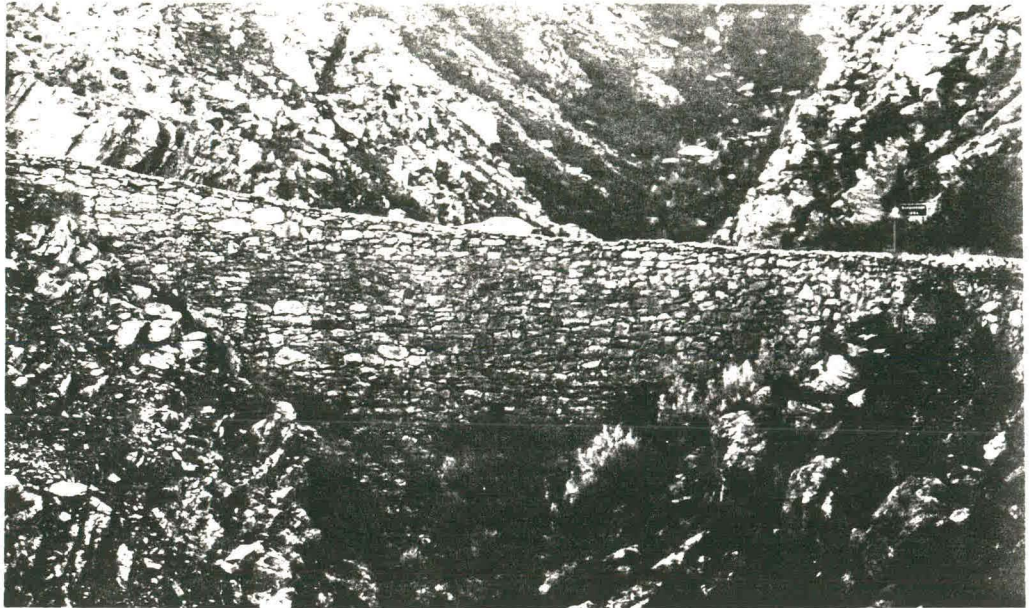
121 PWD 1/294 Letters Received, Road and Building Works Officials : W. Grier - Assistant Commissioner : 11/1/1883, no. 1/12 (CAD).

122 See Appendix 6 for statistics on number of insolvencies between 1881 and 1889; *Oudtshoorn Courant*, 15/10/1885; G. 91-'83 Reports by Civil Commissioners and Resident Magistrates and District Surgeons for the Year ended 31st December, 1882, p. 87 (CAD).

123 *Oudtshoorn Courant*, 18/6/1885.

division. George Mason Edmeades died on 4 January 1888.

The Commissioner of Crown Lands and Public Works called on Mr P.H. Louw as Tassie's surety to complete the road. At the same time Thomas Bain was instructed to set up plans to take over the work by convict labour. As Louw was not able to complete the road, Bain's plans to complete the work by convict labour were put into operation.



29. Two views of the height of the dry stone pack at Boegoekloof (1886).

CHAPTER 6

THE BUILDING, COMPLETION AND OPENING OF THE ZWARTBERG PASS, AND SCHOEMAN'S POORT

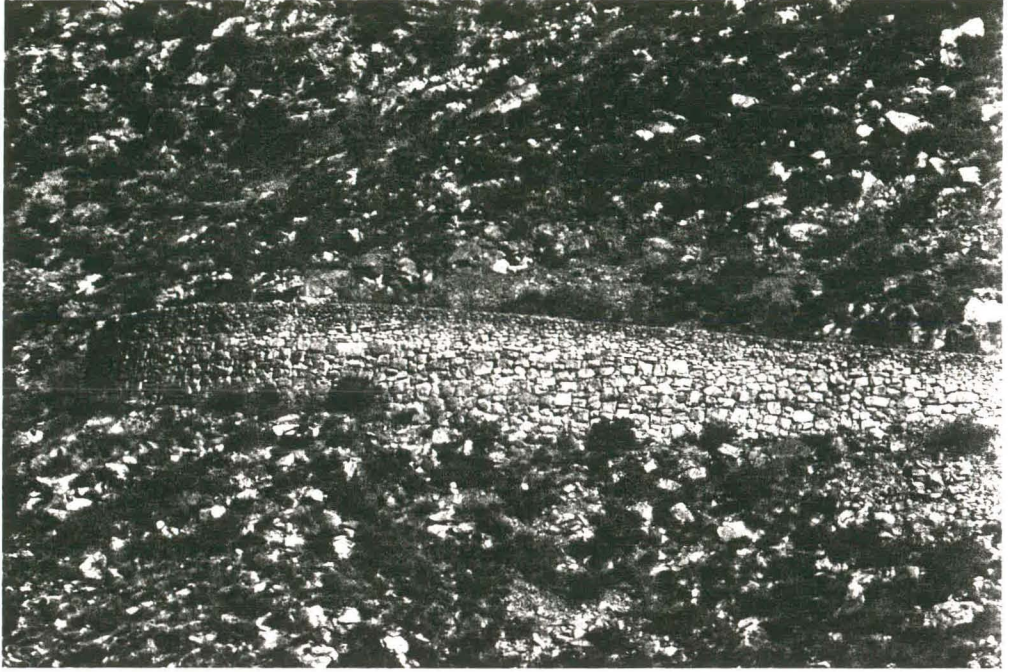
6.1 Civil Engineering Aspects

6.1.1 Dry Stone Pack Retaining Walls

A feature of Thomas Bain's work is the dry stone pack retaining walls he used. Although used by other road builders of that period, they achieved comparably rare quality under his supervision. These walls on many of the passes he built are almost akin to his fingerprints on the mountain side. The retaining walls of the Zwartberg Pass are arguably the most awe-inspiring of all the mountain passes in South Africa built during the nineteenth century. In one place on the southern side of the pass they run for 1,5 miles (2,4 km). They also range in height from around one and a half feet (a half-meter) to forty two and a half feet (thirteen meters).¹⁴⁶ These walls have held the road against the precipitous mountain sides for over a century and have thus stood the test of time. A significant reason for this is that Bain's walls can be said to have "a good hat and good boots".¹⁴⁷ They have a touch of quality. While one is unable to inspect the boots (the foundations), the outer base thereof is as good as new. They have not crumbled or slipped in any significant measure.

146 Measurements taken by M.D. Radford and myself. This latter measurement of the height of the stone pack was taken at Buchu Kloof on the southern side of the pass.

147 M.F. Downing : *Landscape Construction*, p. 171.



30. Two views of the dry stone pack just below the northern summit of the Zwartberg Pass.

In 1776 Coulomb was the first to formulate the laws of friction and cohesion which govern pressures on retaining walls. Rankine's formula followed and was subsequently the one more frequently used. In this formula the angle of repose replaced the angle of friction.¹⁴⁸

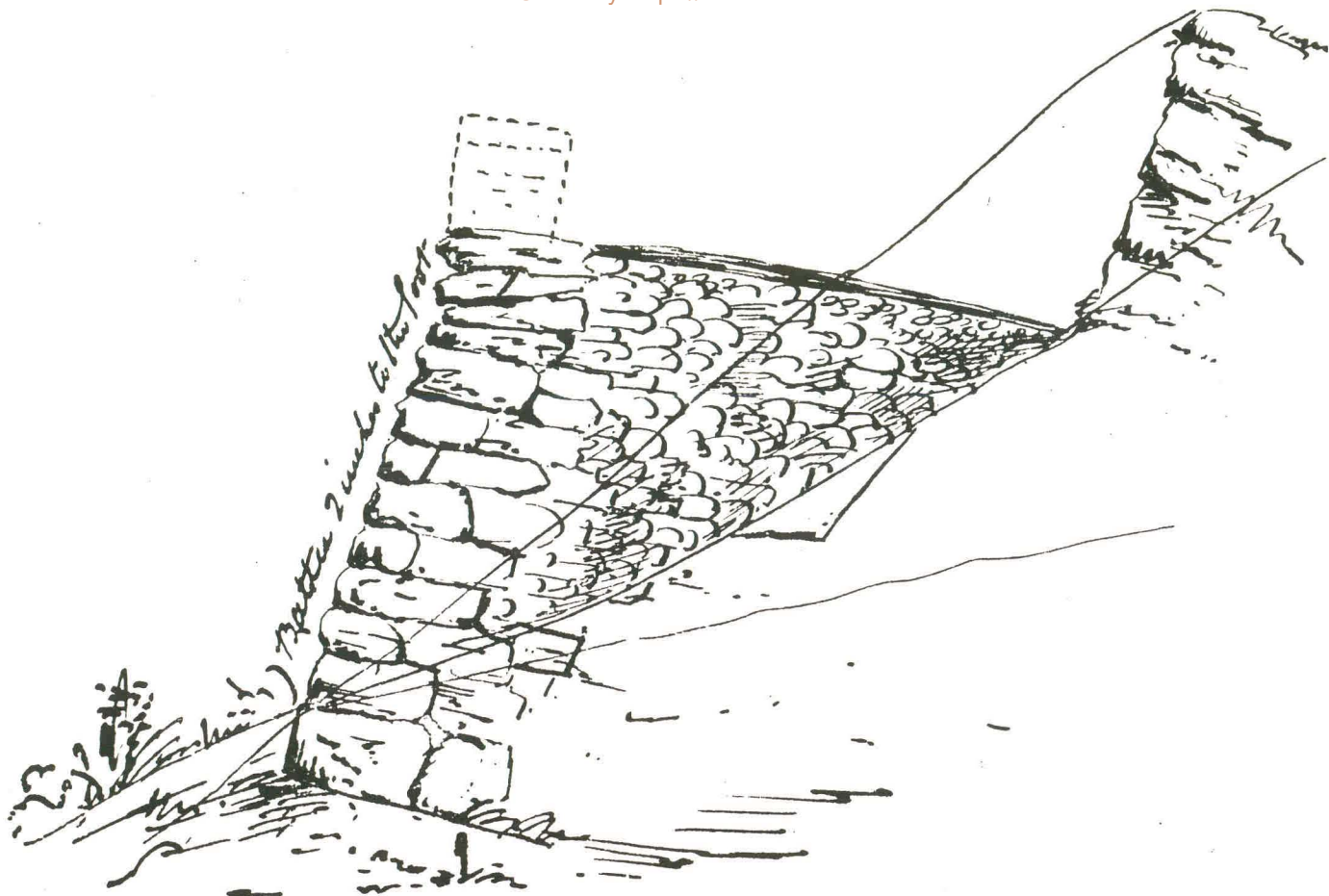
The bed (ledge, base or shelf) of the wall normally measured up to 3,2 feet (1 m). It could however be more, depending on the height of the wall. The higher the wall the deeper the bed into the mountain side. It was cut into the rock of the mountain. The bed would then be packed. While the example of these walls as cited by M.F. Downing consists of a concrete foundation 225mm thick and 700mm (28 inches) wide,¹⁴⁹ the traditional tried and tested practice which Bain most probably used, was to use stones of the same width and depth to form the foundations. This was not because cement was not available. Portland Cement had been patented by Joseph Aspdin in 1824 and was advertised in the Southern Cape district in 1880.¹⁵⁰ It was also used on the Schoeman's Poort Works in the latter half of the 1880's. However, Bain and his contemporaries would hand-select stones and form a coping by laying these stones with the grain at right angles to the natural bedding line (or edge bed them).

From the bed the retaining wall was built up at an angle towards the slope of the mountain side, rising to achieve a width of

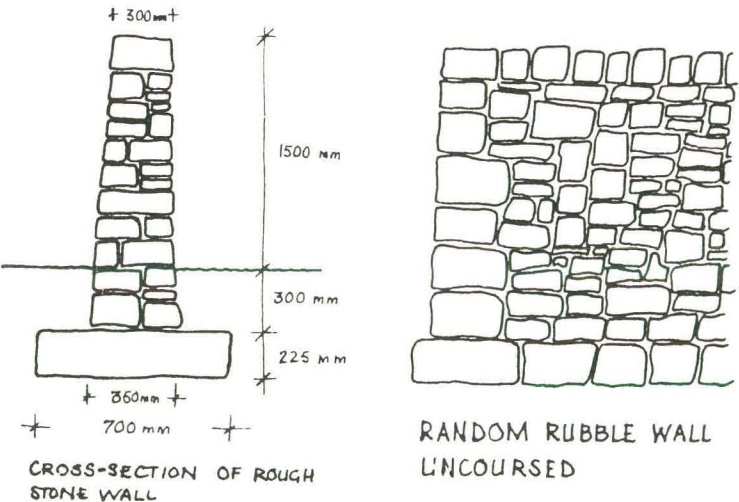
148 R.F. Legget : *Geology and Engineering*, p. 207.

149 N. Davey : *A History of Building Materials*, p. 106.

150 *Mossel Bay Advertiser*, 7/1/1880 (Advertisement).



31.i. A sectional sketch of the planned dry stone pack, filling and cutting on the Zwartberg Pass by W. Grier.



31.ii. Sketches of a stone pack wall.

approximately 300 mm at its top.¹⁵¹ The measurements on two sections of the walls on the Zwartberg Pass are: Vertical = 13,1 m and H = 14,3 m at Buchu Kloof, and Vertical = 7,3 m and H = 7,9 m at the second hairpin bend (north side). This then gives a repose of approximately 1/3 : 1 on each measurement taken (or more precisely 0,44 Horizontal to 1 Vertical on the one to 0,41 Horizontal to 1 Vertical on the other - Compare this to the specifications on the sketch alongside as drawn by the Chief Inspector of Public Works). The top, parapet or guard wall, measures 1m in height and 0,5m in width. The retaining wall was thus built in a triangular shape. Between the mountain side and the wall, rocks and gravel were used as filler material and eventually this was surfaced. Because of this sequence the roadway would also have been well drained. Retaining walls were often built with odd-shaped pieces of weathered stone embedded in the surface of the ground. Because these rocks were naturally weathered they only really needed to be dressed (chiseled) at the quoins (i.e. external angles). However, because of the quantity of stone needed for the walls on the Zwartberg Pass, picks, bars and wedges were most likely used for quarrying this stone here.¹⁵² Axes, gabs, scabbers, puncheons, plain and serrated chisels of different sizes were used for dressing the stone. After being dressed into wedge shapes, the stones would be placed thick end on thin end in the building of the wall. The random rubble

151 See photos for examples of retaining walls opposite p 121. See examples from M.F. Downing : *Landscape Construction*, p. 173, and drawings from specifications drawn up by Grier (Chief Inspector) opposite.

152 *Oudtshoorn Courant*, 20/11/1883 (Advertisement for tool tender).



32.i. A southerly view from the summit of the Zwartberg Pass.



32.ii. A view of the road crossing the summit of the Zwartberg Pass.

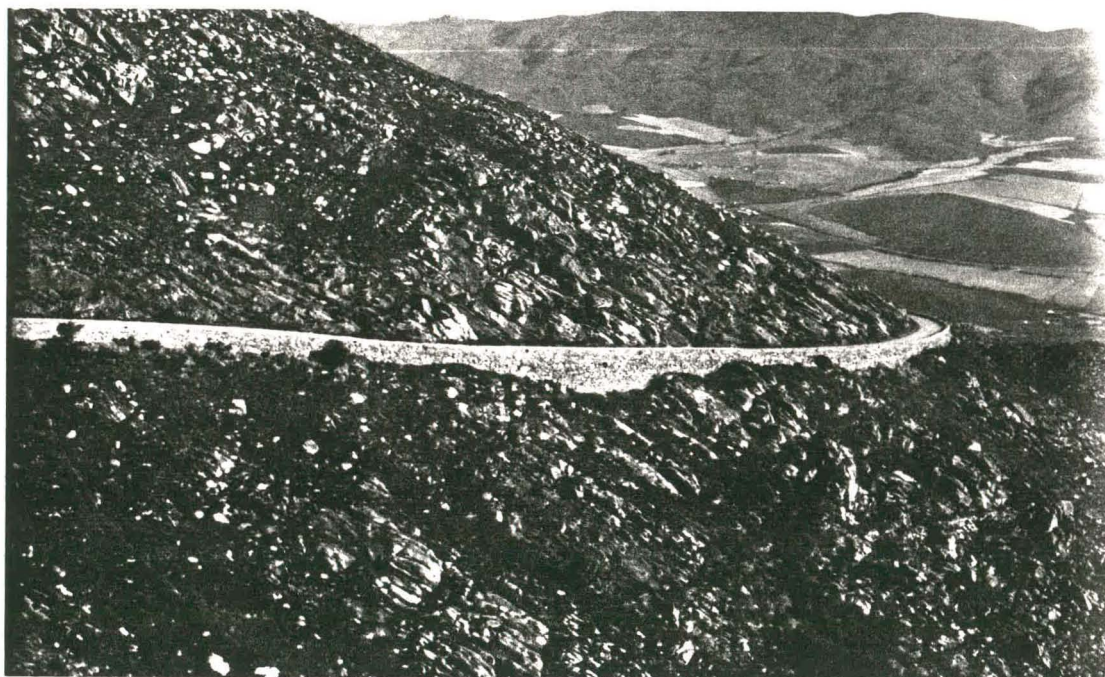
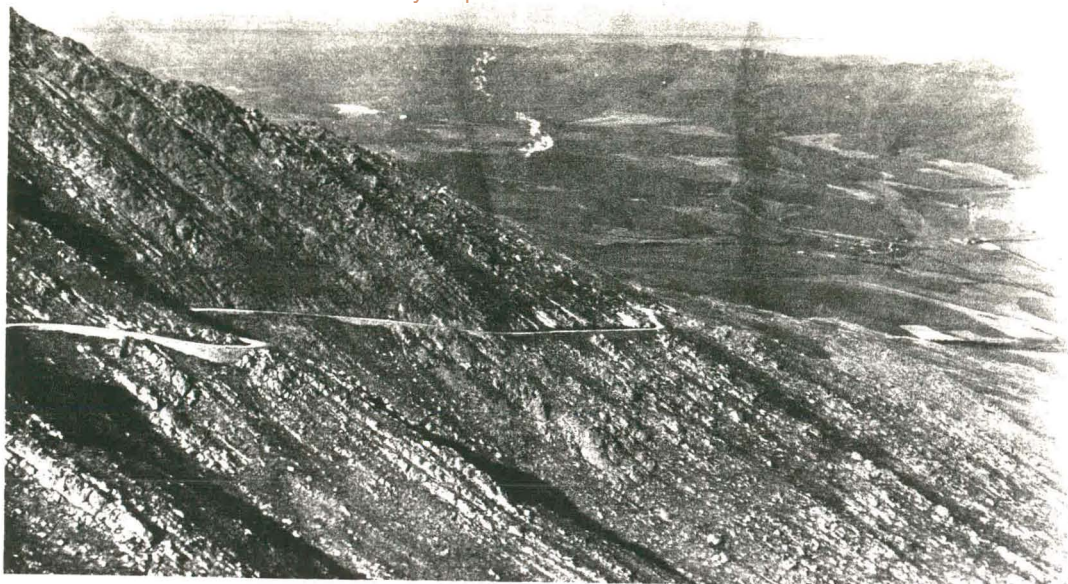
uncoursed method was then used. Any pressure brought to bear on the roadway by traffic would merely compact and secure the walls and the roadway.¹⁵³ The strength and durability of these walls also depended to a large extent on the manner in which the stones were selected, packed and interlocked. The building of dry stone masonry retaining walls was a craft taught to convict overseers. They in turn supervised the convicts in the dressing and placing of the stones. Modern techniques and materials have, however, ensured that this method is now seldom used. Besides stone masons being used on the Outeniqua Pass in the 1940s and on the realignment and tarring of Meiring's Poort, the use of these artists on the building of the Klipspringer Pass¹⁵⁴ is but a rare modern example of a perhaps dying art.

6.1.2 Dynamite and Gunpowder, or Fire and Water?

McCann's statement that the period in which the Zwartberg Pass was built was in the days before dynamite was used is not

153 Interview with Mr Gerald McCann on 18/9/1990. McCann, a former builder of forest roads and who had ten years of practical experience in primitive road making in the Katberg, Langeberg, Kogelberg and Outeniqua mountain ranges, described this method to me. He has also written a few articles on Thomas Bain, one being : 'The brilliance of Thomas Bain' (*Personality*, 6 January 1988). In this article he partly describes the method used; M.F. Downing : *Landscape Construction*, pp. 172-173; N. Davey : *A history of building materials*, pp. 13-16; A. Descendant : Thomas Charles Bain - Road Engineer Extraordinary (*The South African Survey Journal*, No.66, Vol XI, December 1967, p. 11).

154 J. Fourie : Hulde aan gister se padbouers (*Custos*, September 1992, p. 16-17).



32.iii. Three southerly views from the summit of the Zwartberg Pass including varying lengths of the dry stone pack wall.

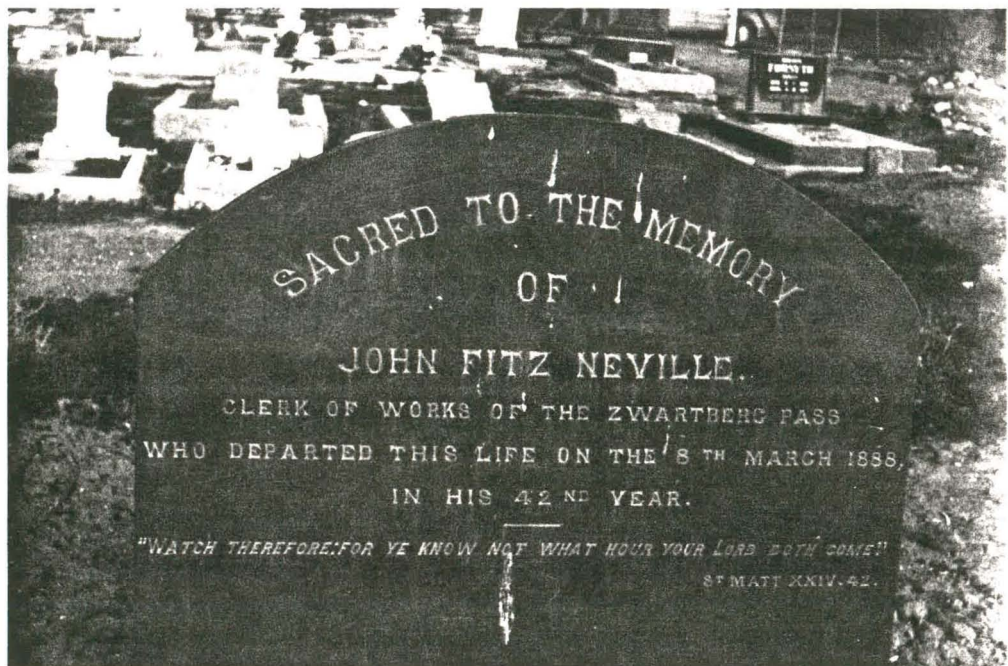
correct.¹⁵⁵ Nevertheless he does describe two other methods of rock removal that possibly were used in the building of the Zwartberg Pass.

The fire and water method was one which was successfully used by Thomas Bain's father in Meiring's Poort.¹⁵⁶ This was apparently the first time this method was used in the Cape Colony. It was not only a success, but ensured a saving in building material costs as well. A fire (or fires) would be built on top of the rock (or rocks) to be removed after the wood and bushes had been cleared away from the site. Once the fire was burning strongly and the rocks were hot from the fire, water would be used to douse the flames. Perennial streams are found on the Zwartberg so water was readily available. The annual average rainfall on the Zwartberg is 35 inches (900mm) compared to the fluctuating annual average of between 3 inches (75mm) and 5 inches (125mm) of Prince Albert.¹⁵⁷ The extreme change in temperature would crack the rocks and make them easier to handle with crowbars and other tools. On some occasions wooden wedges would be driven into the cracks in the rocks. Water would be poured over the wedges to make them swell and this would widen the cracks created by the

155 G. McCann : The brilliance of Thomas Bain (*Personality*, 6/1/1988, p. 74).

156 G. 22-'57 Annual Report of the Central Board of Commissioners of Public Works for the year 1856, p. 76 (CAD).

157 D. Van Pletzen : Prince Albert in the Great Karoo (*South African Panorama*, April 1974). What is interesting to note is the annual average rainfall of Prince Albert as given by Burton in comparison to the above; A.R.E. Burton : *Cape Colony for the Settler*, p. 222 gives a figure of 10,6 inches (269mm).



33. The tombstone of the former Clerk of Works on the Zwartberg Pass, John Fitz-Neville, in the Prince Albert cemetery.

fire and water.¹⁵⁸

The method using gun or blasting powder was also a laborious task. Hand drills were used to drill holes of approximately 3 feet (1 m) deep into the rocks. The drill would be knocked by a hammer, and then rotated by hand, this sequence being followed again and again. With solid banks of rock a number of holes would have to be drilled. If the rocks were smallish (1 to 2 meters in diameter) they could be shattered by a single blast. However, the charges would have had to have been placed in the right place in this latter instance and the rock strata would have had to have been studied. Once the holes were drilled, 6 to 8 inches (15 to 20 cm) of blasting powder would be tamped (softly tapped) into the hole with a rod. It would be tamped firmly but gently so that it was well compacted and air excluded. Once the fuse was inserted into the powder, clay would be tamped in around the fuse with the use of a thinner stick. Once the clay was about one foot (0.3m) thick, it would be tamped in more firmly. The important point was that air should be excluded so that when the charge went off it would be confined to the heart of the rock.¹⁵⁹ This method was used on various roads even in the twentieth century and thus could well have been used as an alternative method on the Zwartberg Pass.

The explosives industry was in its infancy at the start of the 1850s. Up to this point in time gunpowder, which was first put

158 Interview with Mr Gerald McCann on 18/9 and 20/9/1990.

159 Gerald McCann interview, 18/9/1990.



34.i. A view of the height of the culvert at "Droë Waterval".

to effective civil use on the Cornish mines in 1689, had been one of the only explosives available.¹⁶⁰ Lithofracteur was used in small quantities in Britain in the later 1870s but the manufacture and sale of it was prohibited due to dynamite patents. However, there is no doubt that dynamite was used on the Zwartberg Pass as the Divisional Council of Oudtshoorn requested to be supplied with dynamite and gun powder for the Schoeman's Poort works from the supplies on the Zwartberg Pass, rather than having to be supplied from Cape Town.¹⁶¹

6.1.3 Drainage

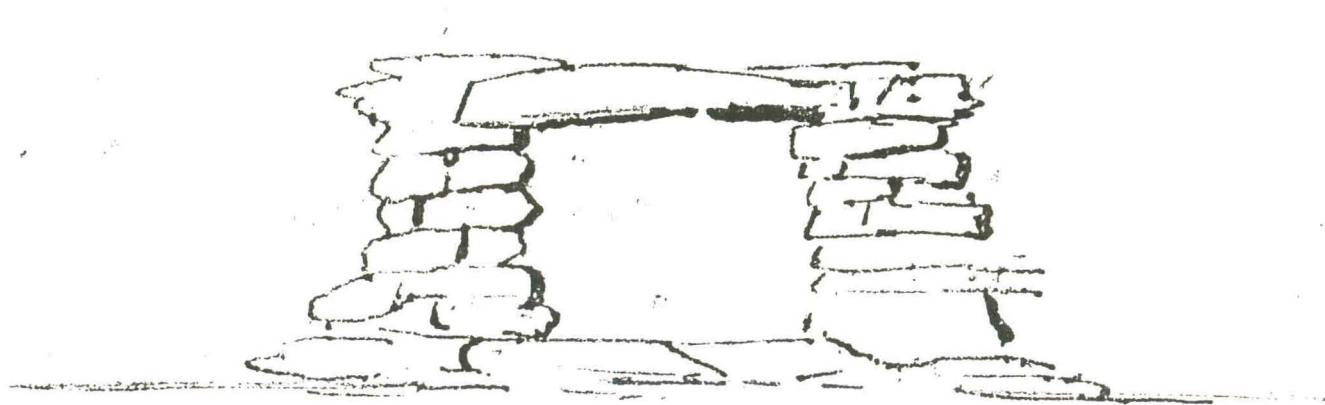
Besides the larger stones on the ledge bedding of the retaining walls providing good drainage, it was necessary to make further provision for drainage on the Zwartberg Pass to ensure that the Pass was indeed an all-weather road. The Pass was not to be another Meiring's Poort that would be closed to traffic whenever heavy rains fell in the area.

Although the specifications¹⁶² give 'rule of thumb' measurements and clear instructions as to how many culverts, side drains (also

160 Singer, Holmyard, Hall and Williams (eds) : *A History of Technology*, Vol V, p. 284.

161 PWD 1/320 Letters Received, Divisional Council Secretaries: Secretary, Oudtshoorn Divisional Council - Chief Inspector, 15 /5/1884; *Oudtshoorn Courant*, 14/8/1883 (Minutes of the Oudtshoorn Divisional Council Meeting of 8/8/1883); PWD 1/549 Letters Despatched, General Series : Janinch - Commissioner, 29/12/1882, p. 667: PWD 1/397 Registers of Letters Received : J. Fitz-Neville - T. Bain, 4/4/1884 (CAD). J. Fitz-Neville (Clerk of Works on the Pass) ordered 500 lbs of dynamite for use on the Zwartberg Pass.

162 PWD 1/547 : Letters Despatched, General Series : W. Grier - Contractors, 17/12/1880 (CAD).



34.ii. A sketch of the planned culverts in the Zwartberg Pass by W. Grier.



35. A culvert in the Zwartberg Pass.

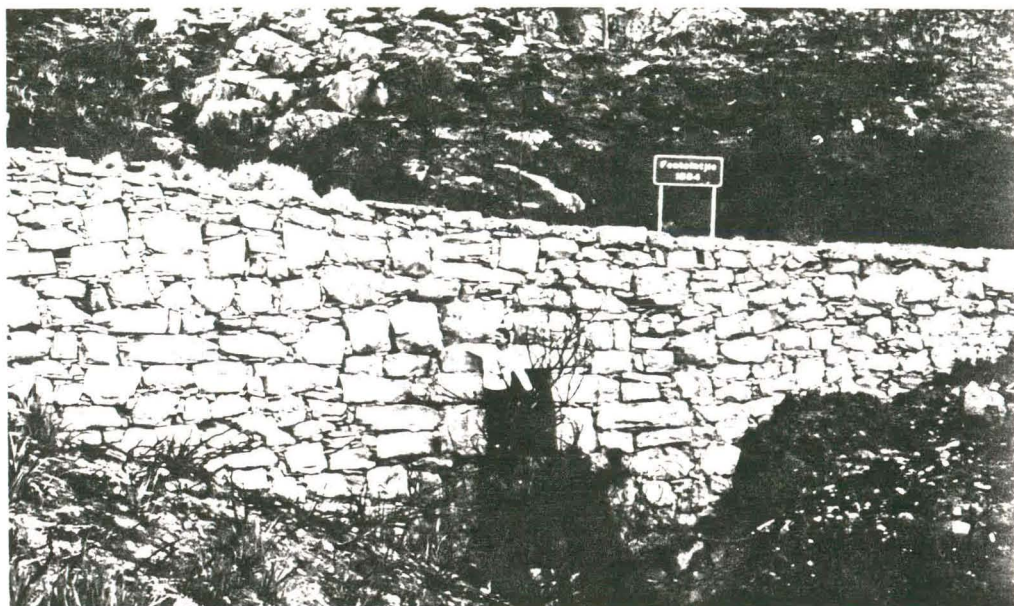
made with stones), etc.¹⁶³ there were to be, it is not clear how these measurements were arrived at. What is clear, however, is that they appear adequate, for after a century of rain they are still in place with apparently little or no damage.

The rational formula¹⁶⁴ was first presented in Ireland in 1851 and became very popular in Europe during the latter decades of the nineteenth century. It is perhaps the most widely applied method world-wide for the estimation of flood peaks in small catchment areas (of less than 100 km²) and for arriving at the dimensions of culverts and small bridges. The engineers of the Public Works Department of the Cape Colony, having had close contact with developments in Britain, must therefore have been aware of this formula. If this formula was in fact used the rainfall statistics must have been based on extremely inaccurate records as no lengthy statistics were available. There was in fact no rain gauge on the Zwartberg Pass until 1888.¹⁶⁵ The formula is "deterministic" where the flood peak is calculated from observed rainfall and run-off co-efficients based on experience. It was a real pioneer method, for the next deterministic method, the Unigraph method, was only developed in the United States of America in 1932. It became widely known in South Africa after 1950. Statistical methods were only applied in South Africa from

163 See sketch drawn by Grier in the specifications in comparison to a photograph taken of a culvert opposite.

164 G.W. Pickels : *Drainage and Flood-Control Engineering*, pp. 62-78; M.F. Downing : *Landscape Construction*, p. 85. See Appendix 8.

165 PWD 1/399 Registers of Letters Received : Secretary, Prince Albert Divisional Council - P.W.D., 7/4/1888 (CAD).



36. Two views of the stone pack, culvert and date at "fonteintjie" (1884).

1950. Statistical methods were only applied in South Africa from the 1930s, i.e. where the maximum annual peaks recorded at flow gauging stations during at least a fifteen-year period are analysed on the basis of probabilistic principles.¹⁶⁶

Nowadays the design of a drainage system is economically determined. After an estimate has been made of the damage that would result from the failure of the drainage system to carry the discharge, the expenditure needed to prevent that damage is calculated, on the probability of a flood which might occur on average over a long period once every 5, 10, 25, 50 or 100 years.¹⁶⁷ How the drainage systems' measurements on the Zwartberg pass were arrived at is not absolutely clear. What is clear, however, is that a century has passed and the drainage appears to have been able to cope with the water discharge in the catchments of the Zwartberg mountain range.

6.1.4 The Zwartberg and the work of Thomas Bain in modern comparison.

6.1.4.1 Routing and construction

The difference between engineering now and in the days of Thomas Bain is that Bain used men under strict discipline and built retaining walls stone by stone, whereas modern engineers use machines and are knowledgeable in the design and pouring of

166 Letter from Z. Kovács, 12/11/1990. He is the Deputy Chief Engineer attached to the Directorate of Hydrology, Department of Water Affairs.

167 G.W. Pickels : *Drainage and Flood-Control Engineering*, p. 78.



37. A view of a cut on the Outeniqua Pass. Had T. Bain built a pass over the same route he would have gone around this spur.

concrete structures. Modern engineers also have chemical and managerial skills which, although Thomas Bain also had, were not as essential then to the success of the task as they are nowadays.

Burman argues that in the first, or pioneer stage of road development, "roads" (tracks) ran over mountains in unbroken, straight lines, this being necessary to enable the oxen to exert full power in pulling their loads. The Cradock "Pass" is an example of this. During the second phase, from the 1840s, a change in pattern may be observed. Horses and mules were now being used more frequently to pull lighter vehicles. Because they were not as strong as oxen they could not climb over "summit passes", and therefore the new passes built had more gradual inclines (the Montagu Pass being the first example, that is, if a gradient of 1 : 6 can be called gradual!) built there along the slopes of the mountain. These inclines followed the mountains' contours, and passes twisted and curled back on themselves. The passes of the 20th Century have in turn changed the pattern once again for they now have also had to take the motor vehicle into consideration. Therefore the longer, unbroken stretches of road, which enable motor vehicles to pick up power and speed, have again come into fashion.¹⁶⁸

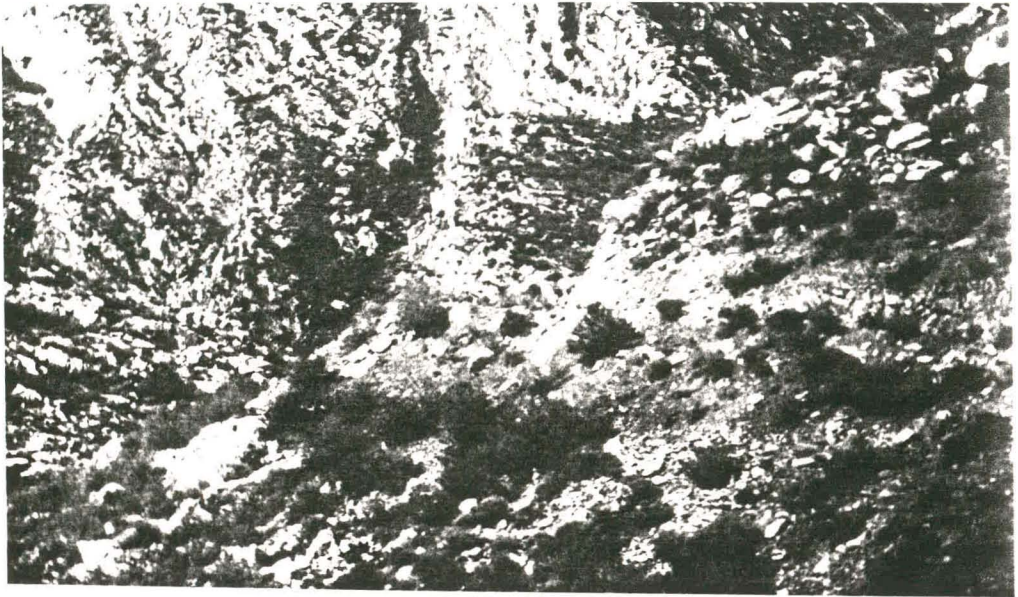
The Zwartberg Pass was built during the later phase of the second period to cater specifically for animal-drawn vehicles. On the other hand the Outeniqua Pass, built to replace the Montagu Pass,

168 J. Burman : *The Little Karoo*, p. 142.

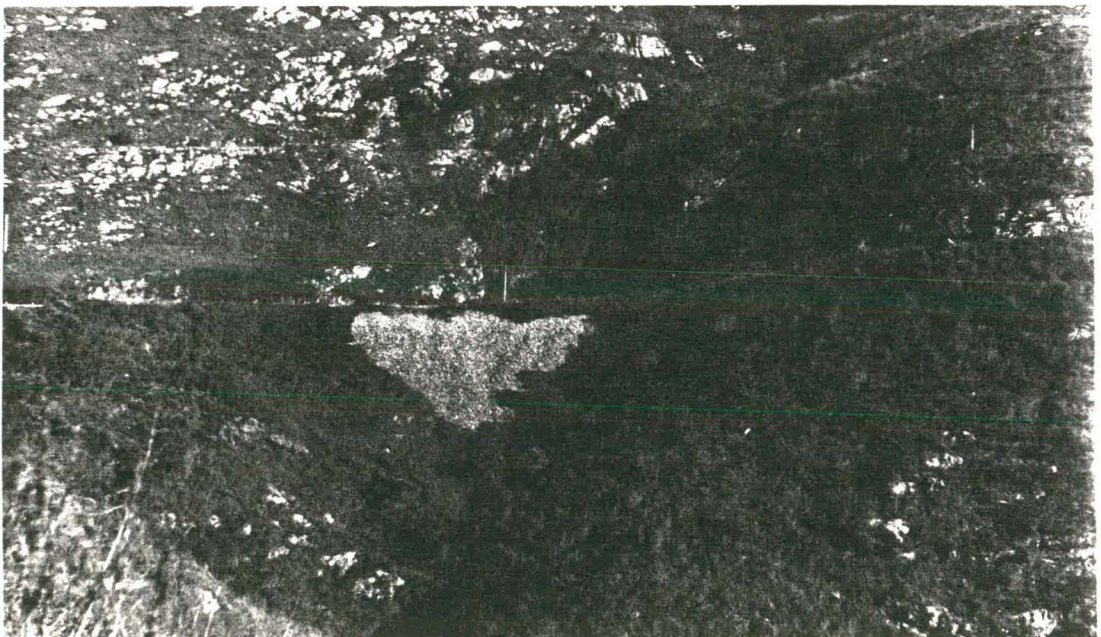
was started in 1943 during World War II by using eight hundred Italian prisoners of war as labourers. The route was chosen with motor vehicles in mind. Cuttings were made into the mountain side up to seventy feet deep. Gorges also had to be bridged by falls of up to one hundred feet high. Projecting rock masses were blasted away and a summit box-cut was undertaken, removing 77 000 cubic yards (588 742 cubic metres) of material. This pass took eight years to complete. Black labour eventually replaced the Italian labourers and the pass was opened on 20 September 1951, by the Minister of Transport, Mr P. Sauer. The pass cost almost R1 million to build.¹⁶⁹ It is clearly apparent that more sophisticated tools and equipment were available for this project to be undertaken. Bain had only picks, shovels, crowbars and sledge hammers at his disposal on the Zwartberg Pass, whereas the more modern equipment includes road plants, concrete mixers, bulldozers, graders, rollers, etc.

In the Tradouw Pass between Barrydale and Heidelberg, interesting comparisons between the work of Bain and modern engineers may be observed. The road has been realigned to cope with modern traffic but not much change in the route has been made, the modern tar surface running mostly over the original surface. However, where Bain chose to go around a spur and build up the road by using retaining walls, modern equipment, more controlled dynamiting and earth moving machines have enabled the modern engineer to cut through the spur; and further on into the pass build the roadway higher up the rock face into the mountainside. New parapet walls

169 J. Burman : *So High the Road*, pp. 102-103.



38.i. Two views of the side cutting just below "blikstasie" on the northern side of the Zwartberg Pass.



38.ii. A view of a "scar" (material and rubble etc. pushed over the side) on the Outeniqua Pass. Nature has a lot to do to reclaim this even after c. 50 years.

have been used to match the old retaining walls. Gabions (a net encasing loose stones measuring approximately 2m x 1m x 1m.) and artistic stone work have also been introduced to match Bain's work.

6.1.4.2 Environmental Impact.

While the Outeniqua Pass between George and the Little Karoo may justifiably be described as a "boldly conceived and majestically executed example of modern road construction"¹⁷⁰ there appears to have been little environmental impact awareness included in its design. The method employed was to cut into the mountainside and push all excess material over the side. This is an eyesore. On the Zwartberg Pass and on Bain's other works by comparison, the roadway has been built up. This construction technique, although not undertaken for environmental impact reasons, is certainly environment 'friendly'. The retaining walls blend in with the mountainside and whatever excess material may have slipped over the side has been minimal. Thus Bain's engineering skills were complemented by a highly aesthetic approach to his work. After a century nature has also reclaimed her own. This has not happened on the Outeniqua Pass. Unfortunately, however, on other works undertaken by Bain in the Tzitzikama Forest region clearings in the forest have allowed the moisture to escape and the sunlight to come in, and thus the micro-climate of this region has been breached. Ecologists now fear that the temperate evergreen forests of this area have shrunk and that the long term

170 T.V. Bulpin : *Discovering Southern Africa*, p. xvii.



39. Two views of the road up "the wall" and the blending of the stone pack with background.

survival of the region is at stake.¹⁷¹

Although there is no evidence to show that Bain chose his route and worked to minimize environment damage, there is evidence to show that he was environment conscious. He, for one, suggested that trees be planted on the Zwartberg Pass.¹⁷² The reason Bain mentioned for suggesting these trees was to induce rain! Of course, this theory does not "hold water". It has no scientific foundation. Trees are the result of climatic conditions and not the converse.¹⁷³ The manner in which the Tradouw Pass was rebuilt also indicates that the modern engineer wanted to both recreate the Thomas Bain finish and minimize damage to the environment. Most of the material excavated was either re-used or taken away. The constructors of the Tradouw Pass in most cases opted for retaining most of the excess material and hiding it behind the gabion walls.¹⁷⁴

The retention of existing vegetation in the development of new proposals for projects is something which is carefully considered nowadays. A detailed survey of vegetation has to be made. Landscape planning and re-vegetation is often undertaken. On the

171 D. Bristow : The other Garden Route (*Car*, April 1991).

172 A. 13 - '87 : Select Committee Report on the opening up of the Zwartberg Mountain Pass, p. 3 (CAD).

173 Information from Professor E.H. Graven, at that time Head of Agronomy, Fort Hare University, 3/3/1992; The Commissioner did not sanction this suggestion of Bain's.

174 Interview with Mr R.V. Reilly, Technical Assistant (Civil), Oudtshoorn, 13/8/1991.

N2 National Road past Mossel Bay large numbers of aloes and other succulents have been planted on the faces of cuttings. Furthermore, grass seeds and other vegetation have been planted on the cutting faces and embankments between the Great Brak River and Herold's Bay. The National Transport Commission even appointed a landscape officer in 1967 to look into environmental and ecological considerations.¹⁷⁵

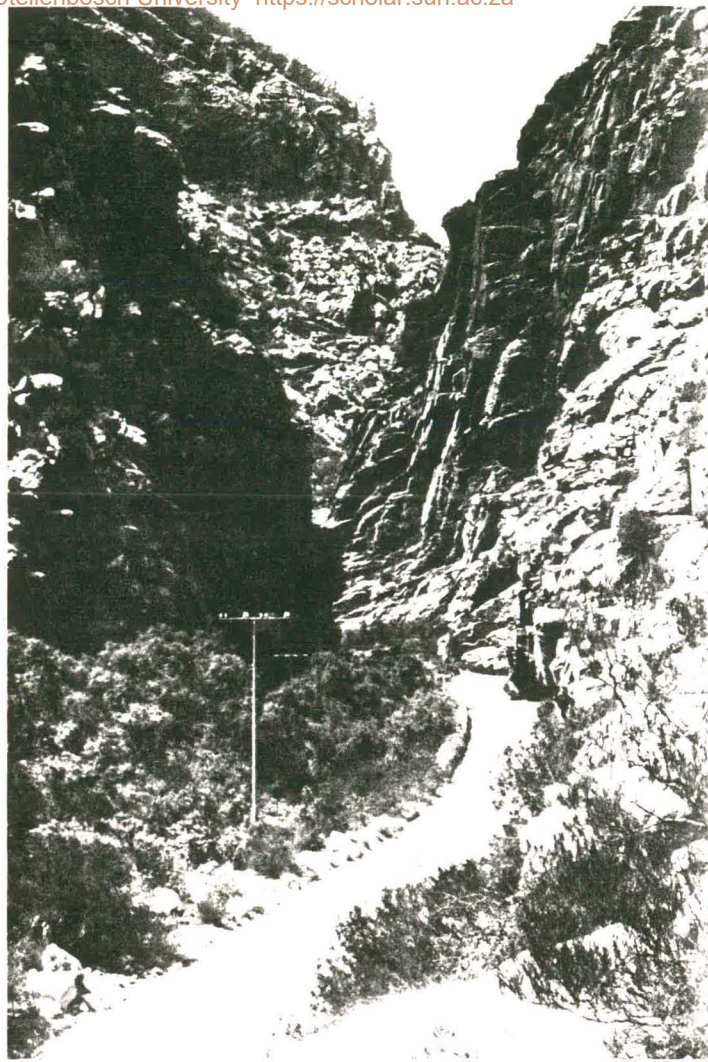
The recent building and opening (1986-1992) of the Klipspringer Pass in the Karoo National Park has once again highlighted the merits of the dry stone pack technique and also its environment friendly nature. The modern cut-and-fill techniques would have caused serious ecological damage, scarring the natural environment.¹⁷⁶ The decision of the National Parks Board to use this 19th Century method is surely yet another compliment Thomas Bain and his father should receive.

When the Prince Albert Divisional Council wanted to cut out a sharp bend in the Zwartberg Pass, the Forestry Department stopped them.¹⁷⁷ Thus one finds that the Forestry Department, and more recently the Department of Nature Conservation, have begun to play an increasing role in road development. Besides, the original character of the Zwartberg Pass should be retained as

175 M.F. Downing : *Landscape Construction*, p. 24; B. Floor : *The History of National Roads in South Africa*, pp. 75-76.

176 J. Fourie : Little damage to Karoo habitat (*Custos*, September 1992, p. 17).

177 Interview with Mr R.V. Reilly, Technical Assistant (Civil), Oudtshoorn, 13/8/1991.



40. Two views of the northern entrance to the Zwartberg Pass, the second showing the huge rocks that posed obstacles to the builders of the pass.

far as possible, as it has been declared a National Monument and is a popular tourist attraction.

6.2 The progress of works on the Zwartberg Pass.

Once T. Bain and the convict labourers took over from where John Tassie had left off, the Zwartberg Pass works were put on a more sound footing. But for the fact that the convicts were maintained and kept under strict discipline, and that there were always more convicts to draw from, Bain might have run into similar labour problems as those experienced by Tassie. In June 1883, just prior to the re-commencement of work on the Pass, Bain complained concerning the scarcity of artisans and the exorbitance of the rates of their wages.¹⁷⁸ A 110-strong convict body was expected from Knysna, but Bain felt this body would need to be augmented by at least another 100. By 28 July 1883 the Knysna works were complete and the convicts were ready to move.¹⁷⁹

By January the rate of work had picked up momentum under the new Clerk of Works, Mr John Fitz-Neville, so much so that the road up to the waterfall on the southern side was completed. The viaduct there had also been inserted. Bain indicated that he had set out the zig-zag, a section of work he considered the most difficult.¹⁸⁰ It was also recommended that a new main convict

178 PWD 1/293 Letters Received, Road and Building Works Officials : T. Bain - Chief Inspector, 4/6/1883 (CAD).

179 PWD 1/293 Letters Received, Road and Building Works Officials : T. Bain - Chief Inspector, 24/7/1883 (CAD).

180 PWD 1/293 Letters Received, Road and Building Works Officials : T. Bain - Chief Inspector, 3/1/1884. (CAD)



41.i. Two views of "Los klip" near the northern entrance to the Zwartberg Pass.



41.ii. A view of "the clock" (time showing 2.20) near the northern entrance to the pass.

station be built near the summit by a 35-man strong, 'good conduct' party who would initially stay in tents. By 20 January these men had been transferred to start building this station.¹⁸¹

There appears to have been a reluctance on the part of the Superintendent of Convicts to work closely with the Clerk of Works, John Fitz-Neville. This was possibly the result of their being at variance on a number of issues as was commonly the practice between those in charge of the convicts and those in charge of the works.¹⁸² This "side-show" did not materially affect the work but it is noteworthy for it highlighted a hitch in the workings of John Montagu's Road Development System.

The progress of the work was being keenly watched by the inhabitants of Prince Albert who were eagerly anticipating the effect the completion of the pass would have on their town. They were confident that their town would increase in size and importance.¹⁸³ By 20 March 1884 Fitz-Neville reported the zig-zag section complete.¹⁸⁴ This however was perhaps an exaggeration as only in September did Bain report it complete. The work was pushed on with much vigour between March and May, for by 8 May

181 PWD 1/763 Report Book, Roads : T. Bain - Chief Inspector, 20/1/1884, p. 222 (CAD).

182 PWD 1/763 Report Book, Roads : T. Bain - Chief Inspector, 5/2/1884 and 13/2/1884, p. 236 (CAD).

183 *Beaufort Courier*, 11/3/1884.

184 PWD 1/293 Letters Received, Road and Building Works Officials : J. Fitz-Neville - T. Bain, 20/3/1884 (CAD).



42. A view of a drift in the Zwartberg Pass ("Eerste Water").

three of the four zig-zags were complete and the entrance to the poort (i.e. the cutting out of two river crossings) and the sharp curves Tassie had made had been redone. In addition to this about one-and-a-quarter miles of road twelve feet wide had been opened above the zig-zag.

The convicts were also employed in the making of bricks and these had turned out so well that Bain gave instructions that the entire convict station be constructed of bricks rather than corrugated iron. This would also save the men from having to carry building materials some 3 000 feet (914,4m) up the mountain side on their backs.¹⁸⁵

The month of June was characterised by much rain and snow, a period when the living conditions of the convicts came under close scrutiny. However, by the end of September the work was back on an even keel with the entire zig-zag completed and a twelve-foot (3.6m) road, open to traffic, running nearly the entire distance to the main convict station (called Uitkyk) near the summit.¹⁸⁶ By February 1885 Bain was ready to move the good conduct party again to a new proposed out-station near the southern base.¹⁸⁷

185 PWD 1/293 Letters Received, Road and Building Works Officials : T. Bain - Chief Inspector, 8/5/1884 (CAD).

186 PWD 1/397 Registers of Letters Received : T. Bain - Commissioner, 30/9/1884, p. 52 (CAD); *Oudtshoorn Courant*, 2/10/1884.

187 PWD 1/596 Letters Despatched, Secretary : T. Bain - Chief Inspector, 28/2/1885, p. 73 (CAD).

May 1885 set the Zwartberg Pass works back for some time. The flood damage was not only confined to this region, but was widespread throughout the Little Karoo.¹⁸⁸ The Uitkyk Station was entirely wrecked by snow, rain and wind. The roof was blown off and the walls soon became saturated and collapsed. One hundred convicts were moved to Prince Albert for accommodation while the station was repaired. Although the flood swept away eighty yards (73m) of the road, seventy-five feet (22,8m) of Tassie's retaining wall at the poort entrance, as well as causing several landslides, Bain mentioned that he was happy it had happened, as it gave him the opportunity to raise the road three to four feet (0,9m to 1,2m) above the original level and put him in a good position to prevent its re-occurrence. This flood was possibly a reason for the Zwartberg Pass standing for over 100 years.

However, not all the reports received described the damage done as "minimal". There was a terrible loss of livestock, arable lands were washed away, property was irreparably damaged, and the Victoria Bridge and various roads were swept away which resulted in all communication being cut off. All farmers suffered to some extent, with three to four thousand ostriches in total being lost, besides thousands of other livestock (horses, mules, donkeys, oxen, cows, sheep and goats). Weirs, pontoons and dams were damaged. Meiring's Poort and Caledon Kloof were both

188 PWD 1/397 Registers of Letters Received : T. Bain - Chief Inspector, 27/5/1885, p. 56; PWD 1/596 Letters Despatched, Secretary : T. Bain - Chief Inspector, 27/5/1885, p. 372 (CAD); *Oudtshoorn Courant*, 21/5/1885, 28/5/1885, 4/6/1885, 11/6/1885, 25/6/1885 and 9/7/1885.



43. A view of a drift in the Zwartberg Pass ("Tweede Water").

impassable.¹⁸⁹

The floods also raised the issue of the value of Meiring's Poort as a safe and trustworthy route to the interior. This debate intensified and became an emotive issue as various alternative routes were suggested.¹⁹⁰ Towerwater Poort was one of these. It was a gap in the same mountain range 34 miles east of Meiring's Poort. It was only 3 miles long with 3 river crossings and was seen by Thomas Bain as being the most viable alternative to Meiring's Poort. Snykloof and Spitskop were other suggested routes. However, Bain stated that Towerwater Poort was infinitely preferable to Meiring's Poort and that a permanent road could be made for £5 500. He also stated that if Meiring's Poort was re-opened it would soon be practically useless as the Zwartberg Pass would take away most of its traffic. Besides this, Towerwater Poort would open up the whole of the Uniondale and Knysna Divisions at the same time.

The inhabitants of Prince Albert tried to further capitalize on the floods by opposing the reconstruction of Meiring's Poort.¹⁹¹ The value of the Zwartberg Pass was certainly enhanced. Besides,

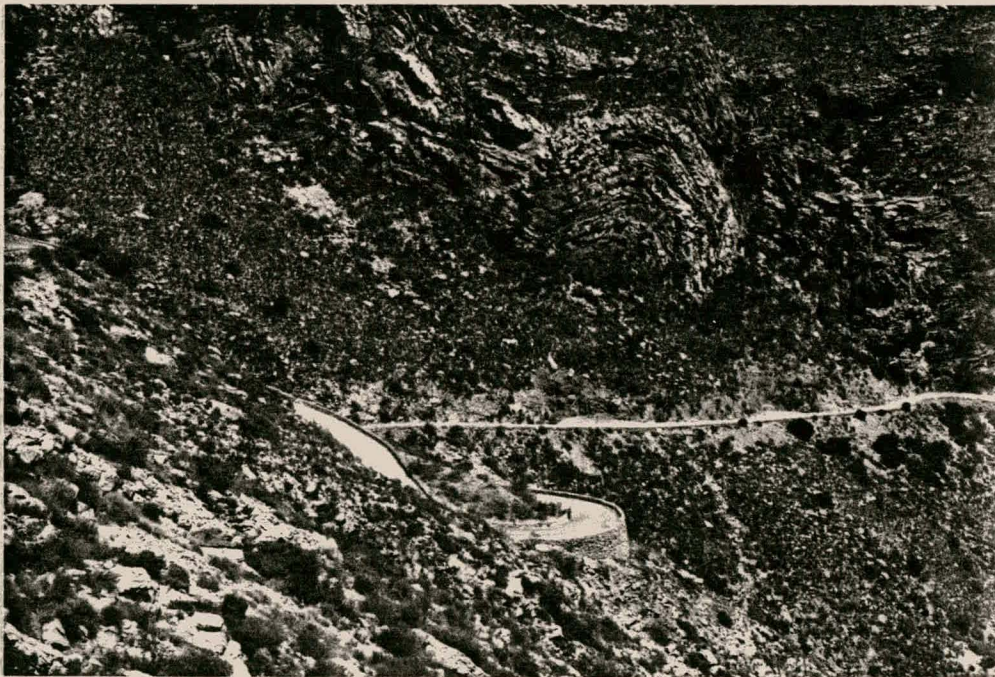
189 *Oudtshoorn Courant*, 4/6/1885.

190 PWD 2/11/49 Roads : T. Bain - Chief Inspector, 11/6/1885; A. 10-'85 Report by T. Bain upon the destruction of Meiring's Poort and the best means of opening a pass across the Zwartbergen (CAD); The *Oudtshoorn Courant* intensified the debate. See *Oudtshoorn Courant*, 2/7/1885, 13/7/1885 and 30/7/1885.

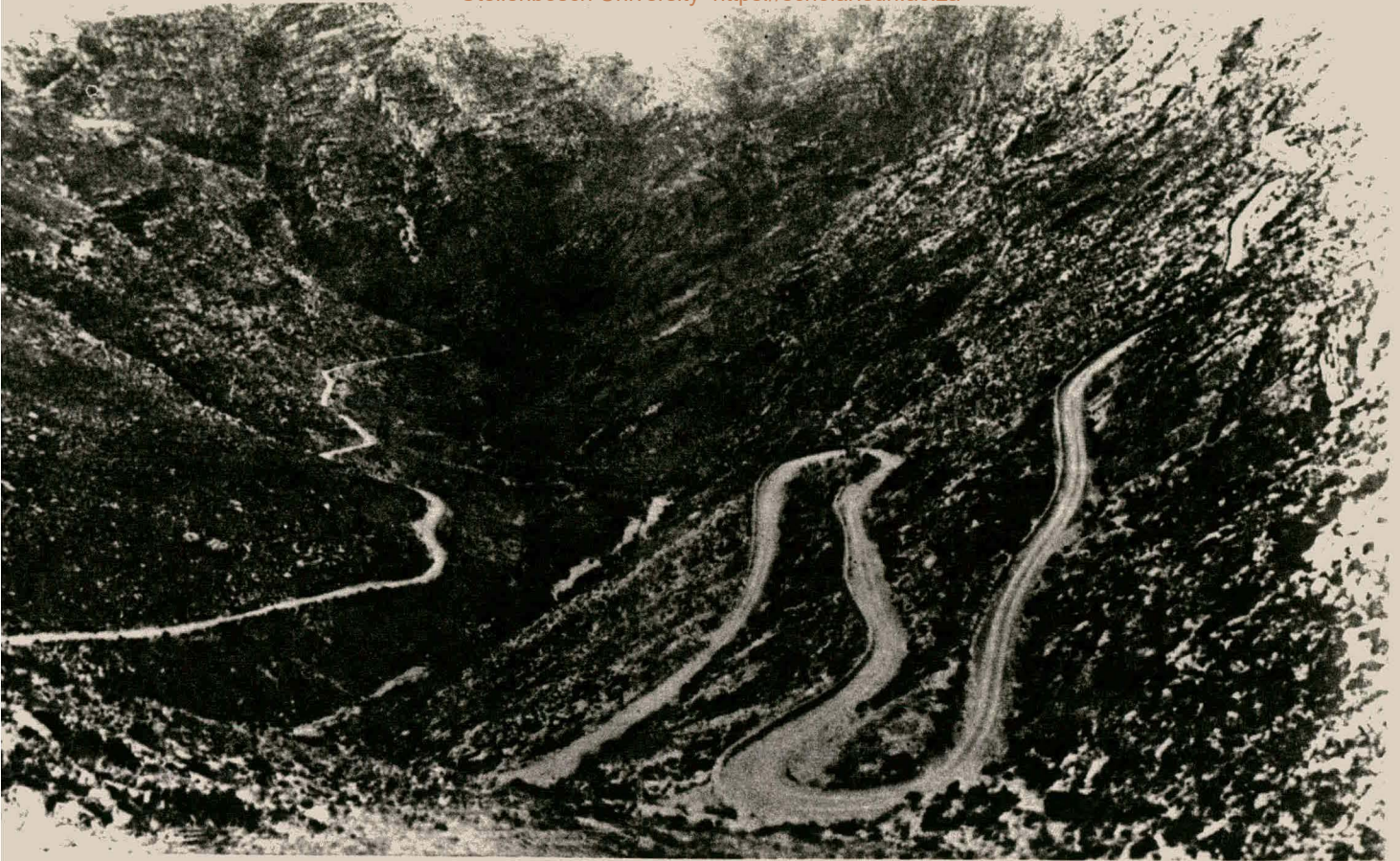
191 *Oudtshoorn Courant*, 2/7/1885; PWD 2/152 Letters Received, Divisional Councils : Secretary, Prince Albert D.C. - Chief Inspector, 6/7/1885 (CAD).



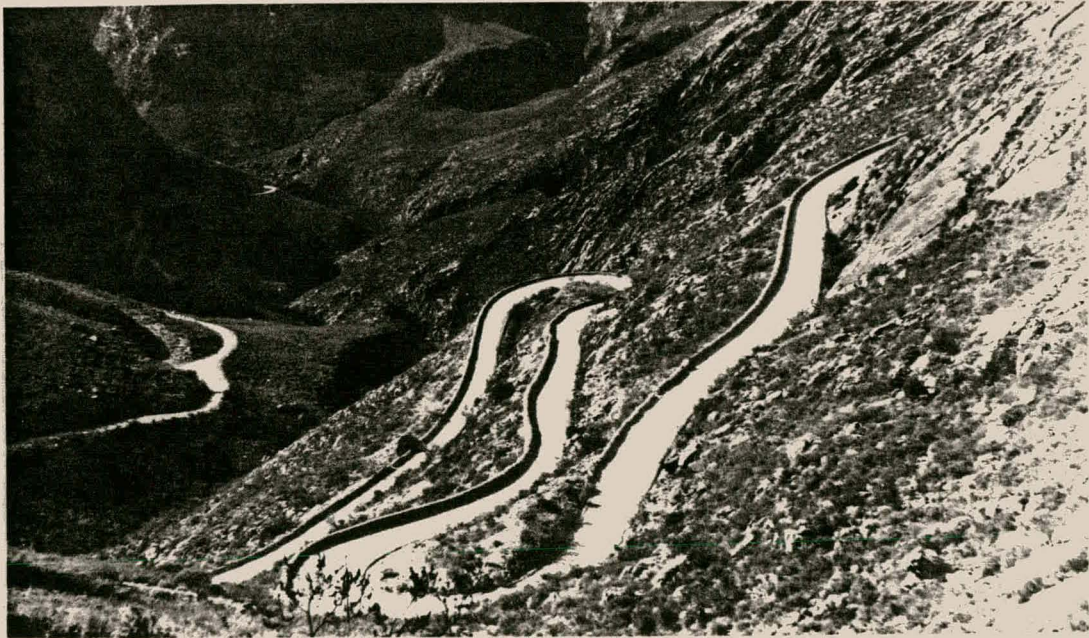
44. A spring-cart in the Zwartberg Pass (at "Tweede Water").



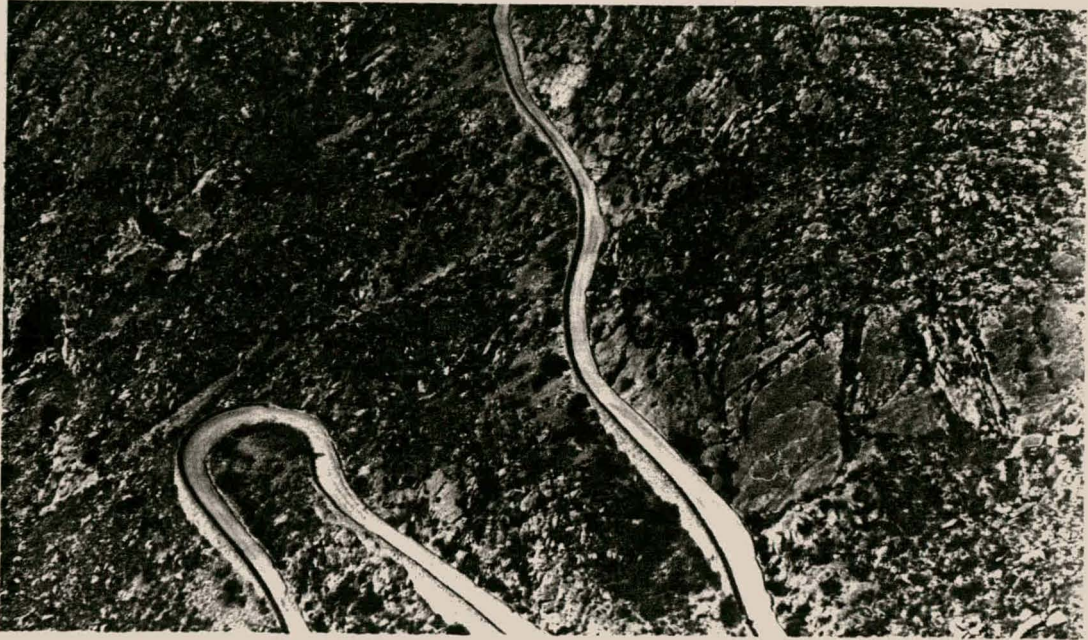
45. Two views of the road climbing "the wall".



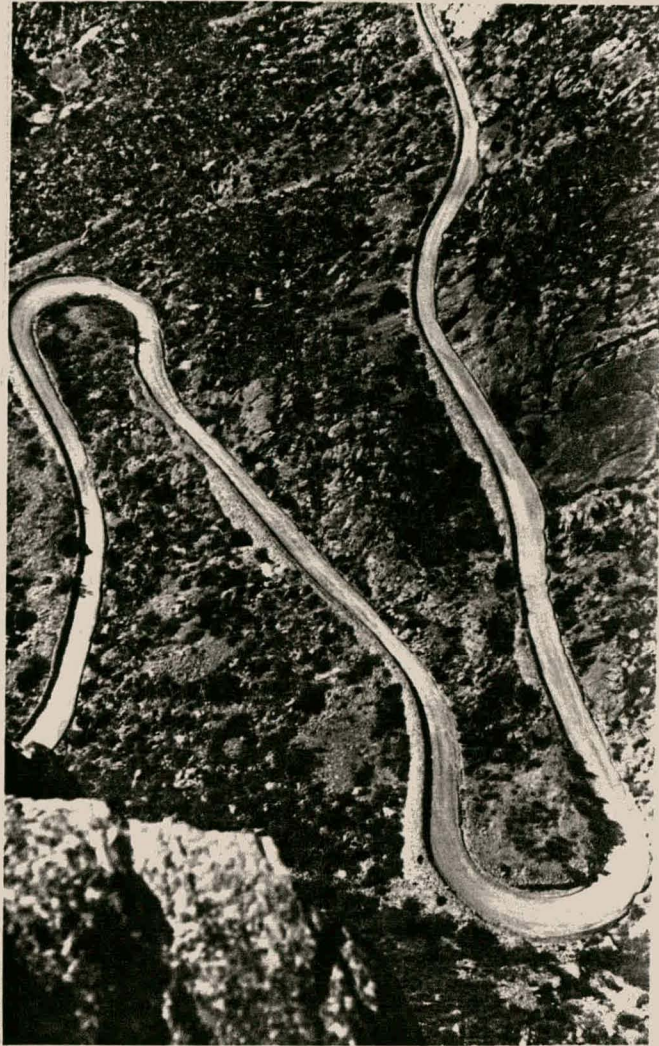
46.i. The zig-zag on the wall on the northern side of the Zwartberg Pass.



46.ii. A 20th Century view from approximately the same position.



46.iii. Two views of the zig-zag on "the wall" from an "aerial" perspective, showing varying degrees of height, depth and contour.



46.iv. A third "aerial" view of "the wall" and zig-zag.



47. Two northerly views i. from the summit, and, ii. from "Teeberg" on the Zwartberg Pass.



48.i. A close view of the dry stone pack on the zig-zag near the northern summit of the Zwartberg Pass.



48.ii. A view of the zig-zag near the summit of the Zwartberg Pass.



49. Boegoekloof (1886).



50.i. The ruins at "hotelletjie".



50.ii. The ruins at "stalletjie".



51.i. A mule cart with attendant near the southern side of the Zwartberg Pass.



51.ii. A 20th Century view from nearly the same spot on the Zwartberg Pass.



52. Two views of the Zwartberg Mountain Range over which the pass crosses from the south.

it was seen as an all-weather route. By October 1885 the damage done to the Pass was a thing of the past. Bain was able to travel over the Pass with a horse and cart and one of the inhabitants of Prince Albert travelled from Prince Albert to Oudtshoorn in seven-and-a-half hours (including the hour and a half he needed to off-saddle).¹⁹²

The years 1886 and 1887 were spent widening and improving the route already constructed over the Pass. In January 1886 Bain expressed the hope that the Pass would be open for light traffic in March. At the same time it was hoped that the repairs to Meiring's Poort would only be completed by May 1887.¹⁹³ The completion of the Pass led to a dramatic increase in traffic over the Zwartberg, and Bain suggesting that the Pass be opened to the public for use on Saturdays and Sundays.¹⁹⁴ From March 1886 light traffic was officially allowed to use the Pass.

What happened between March 1886 and October 1887 is uncertain, as there is no information available on the routine development and progress of the works. However, the few months before the pass was to be officially opened certainly brought the debate

192 *Oudtshoorn Courant*, 17/9/1885 and 3/10/1885.

193 PWD 2/47 Letters Received, Chief Inspector : T. Bain - Chief Inspector, 4/1/1886; PWD 1/597 Letters Despatched, Secretary : Chief Inspector - Assistant Commissioner, 12/1/1886, no. 1/11; PWD 2/47 Letters Received, Chief Inspector : Chief Inspector - Parliament, 14/4/1886, no. 1/181 (CAD).

194 PWD 1/293 Letters Received, Road and Building Works Officials: T. Bain - Chief Inspector, 28/2/1886; *Oudtshoorn Courant*, 14/1/1886 and 18/3/1886.

concerning the proclamation and opening of the road to the forefront.

6.3 The opening

The major reason for the delay in the official opening of the Zwartberg Pass was due to the controversy surrounding the proclamation of the Zwartberg Road as a main road.

In May 1886 the Prince Albert Divisional Council stated that they would be prepared to take over the road from the Public Works Department when it was sufficiently advanced for safe traffic.¹⁹⁵ One year later, in June 1887, after T. Bain had explained the necessity of having the Pass proclaimed, the Prince Albert Divisional Council still seemed to be "dragging their feet". The Council wanted to leave matters as they were, since they were "conferring with Oudtshoorn" on the subject.¹⁹⁶ The Prince Albert D.C. had in fact asked the Oudtshoorn D.C. for their opinion in a letter dated 14 May 1887. The Oudtshoorn D.C. replied on 11 June that the road should be proclaimed immediately. Eventually on 8 October 1887 the Prince Albert Divisional Council passed a resolution calling for the proclamation of the road as a main road, albeit still asking for minor improvements to the road.¹⁹⁷ The frustration of Bain and the Public Works Department with the

195 PWD 2/353 Registers of Letters Received : Secretary, Prince Albert D.C. - P.W.D., 21/5/1886 (CAD).

196 *Oudtshoorn Courant*, 10/6/1887 (Minutes of the Prince Albert Divisional Council Meeting).

197 *Oudtshoorn Courant*, 27/10/1886 (Minutes of a Special Meeting of the Prince Albert D.C. of 8/10/1887).

Prince Albert Divisional Council was very evident. Bain had even warned that the Pass would be closed to traffic, except for the post cart, should they not accept responsibility for the road through its proclamation.¹⁹⁸ In fairness to the Prince Albert Divisional Council though, it is clear that they were unhappy with accepting responsibility for a road they deemed not to have been satisfactorily finished.

In July 1887 the Prince Albert Divisional Council¹⁹⁹ requested a copy of the resolution passed by the Oudtshoorn Divisional Council concerning their (Oudtshoorn's) willingness to have the road proclaimed, and calling for it to be named the Jubilee Pass. By 10 September 1887 they had not received a reply.²⁰⁰ A second letter of 12 September also did not solicit an answer.²⁰¹ Thus the Prince Albert Divisional Council decided to work on their own to have their section proclaimed. This 'storm in a teacup' was perhaps all a matter of misinterpretation. The Oudtshoorn Divisional Council could possibly have argued that their letter of 11 June 1887 encompassed the resolution asked for, but the fact remains that they did not bother to state this in a courtesy

198 *Beaufort Courier*, 21/6/1887 (Minutes of the Prince Albert D.C. Meeting of 14/5/1887); PWD 2/5/365 Prince Albert Zwartberg Road Works : T. Bain - Chief Inspector, 28/5/1887; PWD 1/600 Letters Despatched, Secretary : W. Grier - Acting Assistant Commissioner, 7/9/1887, p. 51 (CAD).

199 *Beaufort Courier*, 23/8/1887 (Minutes of the Prince Albert D.C. Meeting of 9/7/1887).

200 *Beaufort Courier*, 11/10/1887.

201 *Beaufort Courier*, 18/10/1887.

letter of reply. Honeybone's (Secretary to the Prince Albert Divisional Council) final letter on the matter stating that the Zwartberg range was a well defined boundary, maybe also dividing ideas of etiquette,²⁰² is perhaps a good summary of what the Zwartberg Pass was all about : it sought to unify two areas once divided, but now linked through this road. Hopefully it would also break down petty regionalism and improve communication.

Various names were suggested for the Pass. The Oudtshoorn Divisional Council preferred the name Jubilee Pass (in honour of Queen Victoria's jubilee Year) while some inhabitants of Prince Albert preferred Victoria Pass (in honour of Queen Victoria), Rainier's Pass or Luttig's Pass (in honour of two of Prince Albert's distinguished inhabitants). The Prince Albert Divisional Council eventually decided on the name Zwartberg Pass and, as they had contributed more than Oudtshoorn to its building, it is perhaps fitting that this is the name by which it officially became known.²⁰³ This decision unfortunately, however, perpetuated an anomaly in South African Engineering history where very few engineers have had public works named after them. Arguably more fitting would have been to honour the engineer and builder of the Zwartberg Pass, Thomas Bain.

The Zwartberg Pass was officially opened on 10 January 1888 amid

202 *Oudtshoorn Courant*, 24/11/1887.

203 *Oudtshoorn Courant*, 9/6/1887, 18/9/1887 and 17/11/1887; *Beaufort Courier*, 21/6/1887.

much pomp and ceremony.²⁰⁴ Besides the dampening comments made by certain Prince Albert inhabitants, and the impression given by the Commissioner of Crown Lands (Mr Schermbrucker) that Oudtshoorn had done everything to see the pass built - whereas they had in fact done very little and **that** in bad grace - the ceremony was generally a success. The statements made by Sir Thomas Upington (the Attorney General), at the Oudtshoorn banquet on the evening after the official opening, concerning the impossibility of the Mossel Bay to Oudtshoorn railway being built, must also have been disquieting to Oudtshoorn and its people. It was clear that the finances and the mercantile interests of the country at the time were working to the detriment of Oudtshoorn specifically, and agricultural interests generally.

All in all, though, a significant event had taken place. Nature had been conquered and a communication link between the commerce of the south and the wealth of the north had been provided. The way had been opened for trade and commerce. Besides this the majestic solitude of the Zwartberg range had been made accessible, and here the words of Schermbrucker had a prophetic ring to them: "Ten thousand travellers will in future feast their eyes on this beautiful picture".²⁰⁵

204 *Oudtshoorn Courant*, 12/1/1888 and 24/1/1888; *Beaufort Courier*, 17/1/1888; *Wynberg Times*, 14/1/1888. See also H. Marincowitz : *The Swartberg Pass*, pp. 14-15 for a description of the opening in 1888 and the centenary celebrations in 1988.

205 *Oudtshoorn Courant*, 12/1/1888; *Beaufort Courier*, 17/1/1888; *Wynberg Times*, 14/1/1888.

6.4 Schoeman's Poort

Although one may agree with Thomas Bain that Schoeman's Poort was not part and parcel of his instructions and planning of the Zwartberg Pass,²⁰⁶ one may readily sympathize with the Oudtshoorn Divisional Council in their counter sentiments to this legalistic interpretation, for as far back as 1858 they were wishing to improve the link as a necessary outlet to the Congo Valley. After all, the Valley was situated along the foot of the Zwartberg Range.

The Congo ward was one of the most fertile regions in the Southern Cape and Little Karoo.²⁰⁷ The Congo ward had approximately 2 500 inhabitants, the Grobbelaar's River ward 2 500, the Wynand's River ward 2 500. Schoeman's Poort and the Zwartberg Pass would thus have been of immediate benefit to them and to the inhabitants of Prince Albert. The major problem facing the inhabitants of this region was that it was geographically isolated from various markets. In June 1859 forty farmers petitioned the Cape Legislative Council for a road through the poort. The farmers offered to pay £200 while the Oudtshoorn Council would pay £400 for the building of a decent road through the poort. Surveyor Mr A. de Smidt estimated that the road would cost approximately £2 000 to build. The second petition, in 1860, met with little reaction, it being only after the third that a Mr D. Hattingh was eventually contracted. By June 1862 the road

206 PWD 2/27 Letters Received, Chief Inspector : T. Bain - Chief Inspector, 2/10/1879 (CAD).

207 *Oudtshoorn Courant*, 19/10/1880.

had been made reasonable for traffic use.²⁰⁸

The road suffered much deterioration over the years. During the floods of October 1869 it was washed away.²⁰⁹ The same thing occurred in 1875. By 1879, the year in which the Zwartberg Pass was being petitioned for, no meaningful repair work had yet been undertaken. In May 1881, Mr P. Hyslop made a survey estimating the cost of the road to be £11 000.²¹⁰ Hyslop also stated that he was not convinced that Schoeman's Poort was the best route, as he had been led to believe that a shorter and cheaper connection with the Zwartberg Pass could be made through the hills west of the poort. It could be that Coetzee's Poort and Potgieter's Poort were two other outlets and could have been the routes that he was alluding to.²¹¹ Early in 1883, Mr W.K. Stephens was instructed to lay out a section of the road in Thomas Bain's absence.²¹² The road was initially built under the Divisional Council's supervision. The works were, however, not without problems and

208 A. Appel : Die distrik Oudtshoorn, p. 203; S.A. Craven : The road to the Congo Caves (*Free Caver*, March 1984).

209 *Ibid.*; *The George and Mossel Bay Advertiser*, 28/9/1869.

210 PWD 2/5/318 Oudtshoorn Schoeman's Poort Road : P.Hyslop - Chief Inspector, 7/5/1881; A. 13-'87 : *Select Committee Report on the Zwartberg Road*, p. 7 (CAD).

211 PWD 2/5/318 Oudtshoorn Schoeman's Poort Road : P. Hyslop - Chief Inspector, 7/5/1881; PWD 1/258 Letters Received, Secretary: T. Bain - Chief Inspector, 10/4/1887; PWD 2/5/318 Oudtshoorn Schoeman's Poort Road : P. Hyslop - Chief Inspector, 11/6/1881; South Africa 1 : 125 000 Geological Survey Map : 3321B and 3322A Prince Albert (inclusive), 1965; A. 23-'79 Select Committee Report on Oudtshoorn Road Contribution, p. 11 (CAD).

212 *Oudtshoorn Courant*, 20/2/1883. This was because T. Bain was not well at the time.

controversy, and the first supervisor, Mr C.J. Hicken, was dismissed. T. Bain stated that there were "several mistakes" on the works which had led to a loss of time and explosives. Mr J. Steyn, who replaced him, lasted just two months before also being dismissed.²¹³ The Schoeman's Poort works were eventually placed on a more even keel with the appointment of Mr McConomy as supervisor (although his work was also not entirely free from controversy²¹⁴), and the Divisional Council and the Cape Government came to terms on the utilization of convicts to complete the work.²¹⁵ Mr McConomy eventually finished the Schoeman's Poort Works in September 1889.²¹⁶

The calls from various sections for roads to be built in the area during the building of the Schoeman's Poort Works were attempts to 'strike while the iron was hot'! The petition of various farmers from the Oudtshoorn Division for a road to run along the foot of the Zwartberg Mountains from the start of the Pass towards Calitzdorp must be seen in this light,²¹⁷ as must the chance the Oudtshoorn Divisional Council took in claiming that

213 *Oudtshoorn Courant*, 20/5/1884 (Record of Oudtshoorn Divisional Council Minutes of 14/5/1884).

214 PWD 2/5/318 Oudtshoorn Schoeman's Poort Road : T. Bain - Assistant Commissioner, 17/6/1889. A dispute arose concerning the line the road should have taken, as Mr McConomy deviated into Mr Schoeman's farm territory; PWD 2/5/318 Oudtshoorn Schoeman's Poort Road : T. Bain - Chief Inspector, 21/12/1884 (CAD). Bain was also not happy with the work, stating that it should go deeper into the rock.

215 *Oudtshoorn Courant*, 15/1/1885.

216 PWD 2/5/318 Oudtshoorn Schoeman's Poort Road : Chief Inspector - Assistant Commissioner, 30/9/1889 (CAD).

217 PWD 2/5/318 Oudtshoorn Schoeman's Poort Road : T. Bain - Chief Inspector, 11/4/1887 (CAD).

a road from Schoeman's Poort to Le Roux's River should now be built as had been promised! T.Bain strongly denied any promise, although he supported the idea of this road.²¹⁸

The building of the road through Schoeman's Poort was no easy accomplishment. Very heavy blasting and heavy retaining walls, averaging 18 feet (5,5m) high, had to be undertaken. The side slope of the mountain "was often perpendicular with the overhanging rocks" and often false foundations bolted in several places to the level of the proper foundations were made.²¹⁹ The bridge in the poort consisted of three spans of forty eight feet (14,6m) each with a concrete foundation, and the work was done in random rubble with sandstone quoins (wedges), bedstones and pilasters.²²⁰

All in all Schoeman's Poort was an important work which helped facilitate the flow of traffic over the Zwartberg pass. W.K. Stephen's comment that traffic through Schoeman's Poort and over the Zwartberg had quadrupled towards the end of 1888 bears testimony to this fact.²²¹

218 PWD 1/602 Letters Despatched, Secretary : A. English - Assistant Commissioner, 19/2/1889, p. 274; PWD 2/5/318 Oudtshoorn Schoeman's Poort Road : T. Bain - Chief Inspector, 11/4/1887 (CAD).

219 *Oudtshoorn Courant*, 18/9/1883 (C.J. Hicken - Oudtshoorn Divisional Council).

220 PWD 2/5/318 Oudtshoorn Schoeman's Poort Road : P.Hyslop - Chief Inspector, 11/6/1881 (CAD).

221 PWD 2/5/318 Oudtshoorn Schoeman's Poort Road : W.K. Stephens Chief Inspector, 18/10/1888 (CAD).

CHAPTER 7

THE ZWARTBERG IN A SOCIO-ECONOMIC PERSPECTIVE

7.1 Markets and economic conditions

As the market opportunities at George and Mossel Bay developed during the 19th Century, so the Little Karoo also benefited, for the routes over the Montagu and Robinson Passes provided those much needed transport links for this relatively isolated region. With the settlement of Oudtshoorn officially taking root in 1848 there were even greater opportunities for the farmers of the Little Karoo to increase production. However, it was the eastern market towns, although further away, which were preferred. The reason for this was that historically the southern movement of trade traffic was susceptible to physical and financial risks, as Attaquas Kloof and the Cradock Pass were arduous and in constant need of repair. Because of the relatively favourable topographical terrain to the east, produce naturally found its way along the Langkloof and also over the Suurberg. The establishment of the eastern towns of Uitenhage (1804), Grahamstown (1812), Cradock (1812), Port Elizabeth (c. 1820), Somerset East (1825) and Colesberg (1830) created and further developed these much needed market opportunities.¹ In addition to these markets, there was also contact between the divisions of Prince Albert and Cango over the Zwartberg Mountains via footpaths and stock tracks, and stock, meal, tobacco and sugar,

1 A. Appel : Die distrik Oudtshoorn ..., pp. 103-117.

etc. were exchanged.²

Between 1811 and 1848 the subsistence economy practised throughout most of the Colony changed to become a market orientated economy, and the foundation was laid for further socio-economic development. Up to this time there had been an absence of market competition and the whole economic and social outlook of the pioneer farmers was the exact opposite of the spirit of capitalism. With the discovery of diamonds (1870) and gold (1886) however, there was a transformation from an agriculturally-based economy to an agricultural-mineral economy, and then again to an agricultural-mineral-industrial economy.³

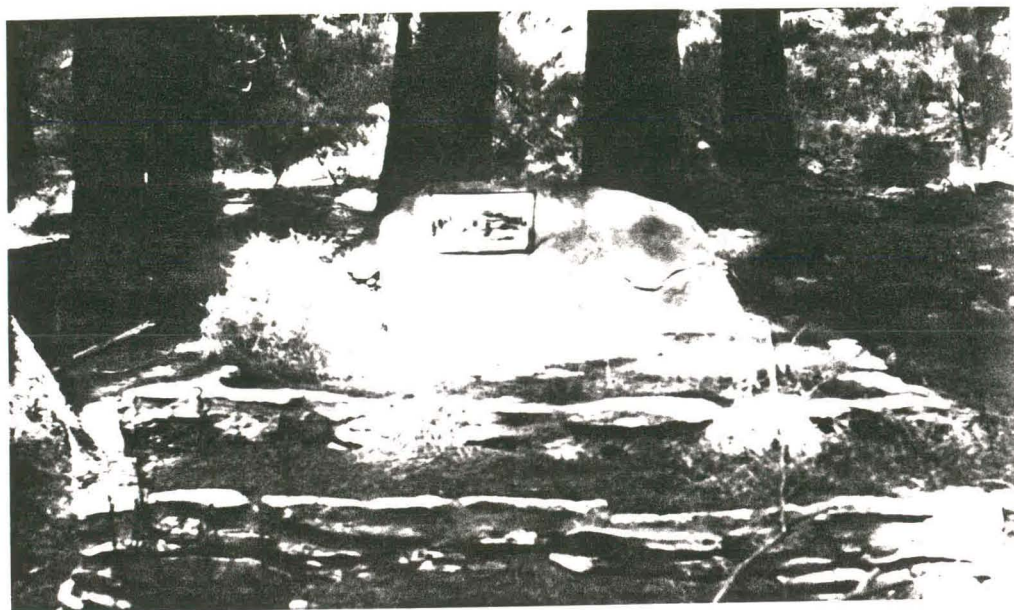
It was in this context then that the Zwartberg Pass opened up another communication alternative to the inhabitants of the Little Karoo, to channel their produce to the towns of the north and to the railway route to Beaufort West and Kimberley.

7.2 The toll system

The first Turnpike Acts were passed in England in 1663, the principle being that the users of the road should pay for the cost and maintenance of those roads. By 1848 there were 30,000 miles (48 270 km) of turnpike roads in England. At first the Acts were limited to a 21-year duration, the assumption being that the

2 C.O. 2794 Letters Received from Civil Commissioner and Resident Magistrate, Uitenhage and George, 1828-1841 : Mr Bergh - Mr Bell, 17/10/1840, no.40 (CAD).

3 C.G.W. Schumann : *Structural changes and business cycles in South Africa, 1806-1936*, pp. 31-33.



53.i. The toll-house ruins near the northern summit of the pass.



53.ii. A sketch of the toll-house on the ruins of the original toll-house.

tolls would clear the road costs in that time. In 1830 the period was increased to 31 years.⁴

As 1806 had seen the imposition of a new administration at the Cape it becomes clear that the Colony was gradually squeezed into a British mould. This included road and communication development. One of the early laws having reference to the imposition of a toll in the Cape was that of 1807 when the Landdrost of Tulbagh asked for a tariff to be fixed for those passing the Roodezand (Tulbagh) Kloof. The governor thus established a turnpike there.⁵

The imposition of tolls at the Cape was also important in helping to raise capital to finance the building and maintenance of these roads. Applications for loans for various mountain pass projects were made on the security of toll fees to be collected.⁶ On this basis the Prince Albert Divisional Council guaranteed to contribute £8 000 to the building of the Zwartberg Pass. Although official cost benefit estimates (analyses) were not used at the time (they are a relatively new means of establishing whether a proposed road will be sufficiently utilized to warrant its construction, and/or whether it will be economically viable), it is possible for historians to establish, in some measure, how well the road was actually utilized by looking at toll receipts.

4 J.P.M. Pannell : *An Illustrated History of Civil Engineering*, p. 28.

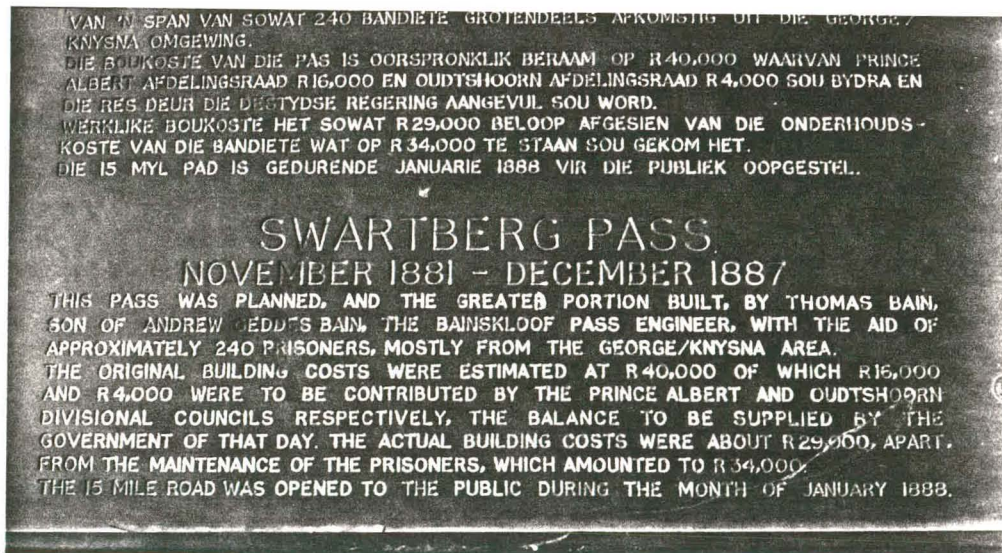
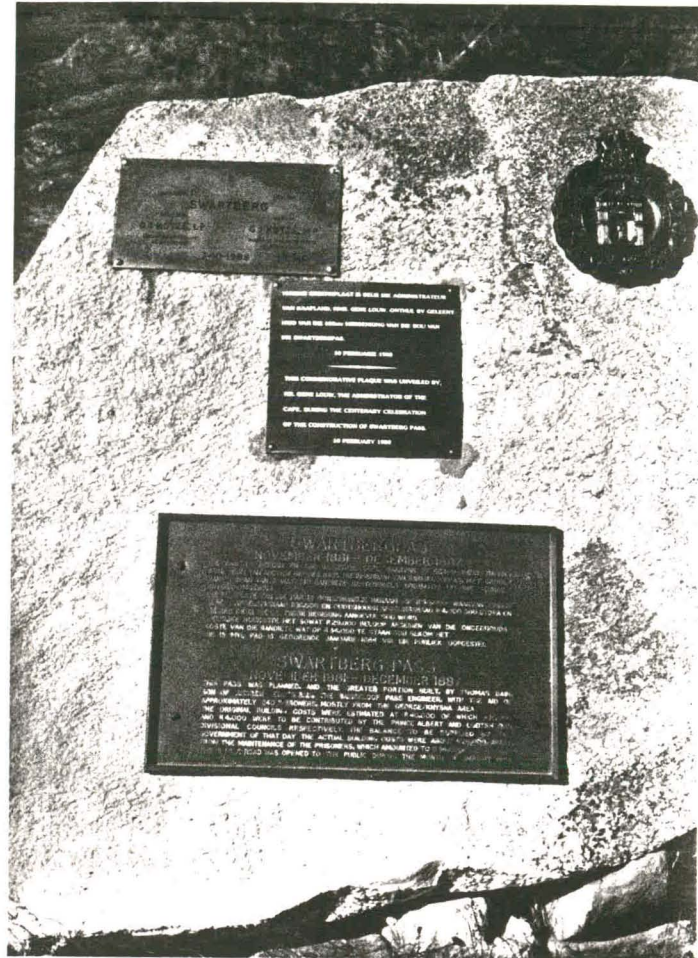
5 C.G. Botha : *Tolls (Motoring in South Africa, June 1918)*.

6 A. 11-'81 Select Committee Report on the Prince Albert Loan Bill, May 1881 (CAD).

However this is dependent on the accuracy with which money collected was actually recorded and is purely a financial measuring rod. The toll on the Zwartberg was established on 1 May 1888 near the summit of the Pass on the northern side.⁷ In March 1890 a new toll was established on the southern side of the Pass.⁸ This toll-bar must have been an additional toll established on the southern side of the pass and therefore distinct from the toll house at Uitkyk that was established by the Prince Albert Divisional Council on 1/5/1888.

From the total fees charged⁹ the average annual income was £85. This was subject to an annual reduction of £42 for the cost of collection, and therefore the nett income received was an average of £43.¹⁰ If one takes £85 as an annual average for the period, 1895 to 1905 (a good average, for by this date traffic had started to taper off dramatically) - it is in fact stated that the revenue from the toll had not been more than £50 per annum

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- 7 In terms of proclamation No.82 of 1888, PWD 2/5/365 Prince Albert Zwartberg Pass Toll: Proclamation No. 82 of 1888 (01.U6); The date on the photograph (see overpage) is 5/5/1888; P. Miller : *Myths and Legends of Southern Africa*, p. 91, relates a ghost story relative to this toll house.
- 8 PWD 2/5/320 Abolition of Toll Bar, Zwartberg : Secretary, Oudtshoorn D.C. - Chief Inspector, 13/1/1905 (CAD). In this letter an application for the second toll on the Zwartberg to be abolished is made as fifteen years had expired and no one wanted to renew this toll lease.
- 9 See Appendix 9.
- 10 PWD 2/5/368 Zwartberg Pass to Prince Albert : Chief Inspector - Secretary, 12/11/1900 (CAD). This average was taken for the period 1895-1900.



54. Various plaques in the Zwartberg Pass.

in times recent to that date),¹¹ and perhaps £100 as a high annual toll average for the period 1888 to 1894,¹² then the amount of revenue derived from the toll for this whole period could not have been more than £1 550. From this amount it is also possible to calculate a rough estimate of the average number of vehicles utilizing the pass over this seventeen year period. The average would have been in the region of 7 750 vehicles (ie. approximately 1,2 vehicles per day). However, it must not be forgotten that various vehicles (both two and four wheeled) and also animals used the pass and that the amount gained from each and the average of each is obscured in the figure given.

In its early years the pass was certainly of benefit to the farmers, for traffic was said to have quadrupled on the pass by October 1888. This was partly due to the quantity of produce being sent to Kimberley and the Transvaal, and partly to the impassability of Meiring's Poort. Wagons carrying loads averaging 6 000 to 7 000 lbs (2 721 to 3 175 kg) were crossing the

11 PWD 2/5/368 Zwartberg Pass to Prince Albert : Civil Commissioner - Under Colonial Secretary, 26/9/1901 (CAD).

12 G. 59-'88 Statement of Revenue and Expenditure of Divisional Councils for the year ended 30 June 1887, pp. 2-5; G. 54-'90 Statement of the Revenue and Expenditure of Divisional Councils for the year ended 30 June 1889, and Supplementary Statement for 1888, pp. 2-5; G. 49-'91 Statement of the Revenue and Expenditure for the year ended 30 June 1890, and Supplementary Statement for 1889, pp. 2-5; G. 54-'92 Statement of the Revenue and Expenditure for the year ended 30 June 1891, pp. 2-5; G. 55-'93 Statement of the Revenue and Expenditure for the year ended 30 June 1892, pp. 2-5; G. 44-'94 Statement of the Revenue and Expenditure for the year ended 30 June 1893, pp. 2-5; G. 45-'95 Statement of the Revenue and Expenditure for the year ended 30 June 1894, pp. 2-5; 4/PAL, 8/3/1/1 : Prince Albert Cash Books, 1879-1894 (CAD).

Zwartberg via the Pass.¹³

What is clear, however, is that by 1905 traffic on the pass had been drastically reduced. Various factors account for this reduction, but probably the most important must have been the rail link which finally connected Oudtshoorn to Klipplaat. Thus for most of the 20th Century the Zwartberg Pass was relegated to linking Oudtshoorn and Prince Albert. Over the years it has also become a tourist attraction, and of late this has been enhanced by the fact that the pass has been declared a National Monument (1988).

The average number of 202 vehicles per day travelling south to Oudtshoorn and the 99 vehicles per day travelling north to Prince Albert, via the Pass, calculated on the Equivalent Vehicle Usage system for the period 1978 to 1988,¹⁴ although not significant figures, are nonetheless a reflection of its renewed popularity.

The toll system in use at the Cape during the 19th Century certainly helped with the development and maintenance of the road system. There were however not that many tolls in operation, for by 1865 there were only three in the entire Colony, namely : Sir

13 PWD 2/5/318 Oudtshoorn, Schoemans Poort, Meiring's Poort Stations: W.K. Stephens - W. Grier, 18/10/1888 (CAD).

14 Traffic counts for Main road 00 369 : Information from D.A. Parker, Control Technician in the Cape Provincial Administration Roads and Traffic Administration Branch, Cape Town. The F.V.U. system monitors a road over 2 days including the intervening night, to arrive at an average count; Mr R.V. Reilly : Technical Assistant - Civil (Interview on 18/9/1990) was therefore not far wrong with his estimate of 100 vehicles per day.

Lowry's Pass, Montagu Pass and Meiring's Poort (in 1864 the Sir Lowry's Pass toll collected £247 -12s -6d, Meiring's Poort £50, and the Montagu Pass £353 -17s -0d in toll fees).¹⁵ Later various other tolls were established in the southern Cape and Karoo, between George and Mossel Bay and at Prince Albert Road Station, respectively. Tolls were in fact an extravagant means of collecting revenue, as between 50% and 70% of the total fees collected went to the collector of the fees and there was thus a call for their abolition.¹⁶

When the National Road Fund ran into financial problems in 1978, toll plazas were again resorted to as a means of raising revenue. It is perhaps significant that the first modern toll road in South Africa was constructed in the Southern Cape in 1983, a century after Thomas Bain constructed the "Passes" route between George and Knysna. The toll system in operation today is thus to all intents and purposes a return to the 19th century system.

7.3 Social Mobility

The people of the Little Karoo tended to live an isolated

15 A. 73-'65 Return showing the various tolls established in the Eastern and Western Provinces of the Colony, p. 2; A. 23-'79 Select Committee Report on Oudtshoorn Road Contribution, pp. 2-3; G. 21-'61 Report of the Chief Commissioner of Roads for the year 1860, pp. 62-65, shows amounts received at toll-bars throughout the Colony between 1843 and 1859 (CAD). Only Sir Lowry's Pass and Montagu Pass are listed, their respective averages for the period being £327 and £325 (Montagu Pass obviously only being taken from 1848 when it was opened).

16 PWD 2/10/93 Abolition and Removal of Toll Bars : T.Hall - Sir James Sivewright (Commissioner of Public Works) (CAD), 14/5/1898.

lifestyle as a result of their being topographically separated from the people south of the Outeniqua and north of the Zwartberg mountain ranges. This, in addition to their tendency to limit their marriage partners to their known circles, helped unify the community, but also helped to develop a spirit of self-centredness and regionalism.

The various passes and other communication links helped to expand the microscopic horizons of these peoples. Between 1813 and 1824 11% of all marriages in the Little Karoo area had one partner from either north or south of the Outeniqua Range. As roads improved there was an increase in travel and attendance of the monthly 'nagtmaal'.¹⁷

It is difficult to define precisely what effect the building of the Zwartberg Pass had on the social mobility of the people of the Little Karoo and of the division of Prince Albert in the Great Karoo. The towns of Prince Albert and Oudtshoorn had their own churches and the people would not therefore have needed to cross the Zwartberg for the purpose of attending church. What is clear, however, is that Haak's Transport Services and the development of the railway system in this region gave the people a greater opportunity and incentive to travel. The Zwartberg Pass was the route J. Haak used between Oudtshoorn and Prince Albert Road Station for transporting both passengers and post.

17 A. Appel : Die distrik Oudtshoorn, pp. 63,94.

A study of the Prince Albert and Oudtshoorn marriage registers for the period 1877 to 1897¹⁸ is more helpful as a social monitor. What they reveal is an increase of nine marriages (350% increase) in the period during which and after the pass was built, in comparison with the period before the pass was built. The registers also testify to the fact that some Prince Albert residents also took partners from as far afield as Aberdeen, Frazerburg, Beaufort West, Kimberley, Wellington and Worcester, and that some Oudtshoorn residents took partners from Calitzdorp, Uniondale, Willowmore and Mossel Bay. One would not be incorrect if one stated that the Prince Albert inhabitants were thereby marginally more adventurous and mobile than their Oudtshoorn counterparts!

7.4 The Zwartberg Pass vs the Mossel Bay Harbour.

7.4.1 The freight controversy

The *Mossel Bay Advertiser* and *Oudtshoorn Courant* record a debate that arose during 1886 concerning whether it was cheaper for Oudtshoorn inhabitants to receive and forward freight via the Mossel Bay Harbour, or overland via the Prince Albert Road Station and Zwartberg Pass.

In the 18 March 1886 edition of the *Oudtshoorn Courant* the railway debate is again touched on. In stating their preference for a possible Oudtshoorn to Klipplaat line rather than a line

18 G. 64-4/3 Prince Albert N.G.K. Marriage Register : March 1877 - August 1898; G. 53-4/6 and 4/7 Oudtshoorn N.G.K. Marriage Registers : May 1879 - September 1886 and September 1886 - January 1892 (CAD).

to Mossel Bay, the *Oudtshoorn Courant* sites an instance when 300 lbs of dried fruit, valued at £4, was forwarded to Grahamstown via the Mossel Bay Harbour and gives the fees involved. The fees (all charges inclusive) were £1 -17s -1d. The Zwartberg Pass was not yet open to wagon traffic, and was therefore not considered at that stage. The freight via the Mossel Bay route certainly saw a multiplication of harbour charges!

<u>Mossel Bay</u>		s.	d.
Carriage to M.Bay at	1s per 100 lbs	3	0
Freight and primage		10	6
Wharfage		0	9
Entries		0	6
Bills of loading		1	6
Shipping		1	6
Insurance		0	6
Repairing and marking packages		0	6
Postage		0	6
Store rent and coolie hire		1	3
<u>Port Elizabeth</u>			
Boating company, loading		3	6
Clearing customs and entries		5	0
Forwarding to railway		1	0
Agency and postage		2	6
Rail from Port Elizabeth to Grahamstown		4	7
		£1	-17 -1d

However, in the April edition of the *Oudtshoorn Courant* it was claimed that the costs of receiving a 50 lb (22,7 kg) parcel from Cape Town via the Mossel Bay Harbour were 19s 8d against the "probable" expense of 9s 6d over the Zwartberg Pass.¹⁹ What is interesting to note in the expenses at Mossel Bay is that it cost three times as much to convey the parcel from the ship to the carrier's wagon than it cost to carry it from Mossel Bay to

¹⁹ *Oudtshoorn Courant*, 29/4/1886. See Appendix 10 for a breakdown of the costs listed.

Oudtshoorn. The *Mossel Bay Advertiser* responded to this by stating that a larger quantity of 1 000 lbs (453,6 kg), rather than the 50 lb parcel, should have been considered and that the costs here would have been £2 -2s -6d and £4 -6s -0d in favour of the Mossel Bay route.²⁰

Answering the specific charges levelled through the *Oudtshoorn Courant* of 8 April 1886 concerning railway and other costs, the *Mossel Bay Advertiser* claimed that the costs involved in getting a steam engine to Oudtshoorn from Cape Town "must have been" at least three times greater if the Zwartberg Pass had been utilized in preference to the Mossel Bay Harbour. The *Mossel Bay Advertiser* went on to claim that Oudtshoorn's importance could not keep the harbour going, that Cape Town had been made the port it was at the expense of the country in general, and that landing iron took three times as long as landing ordinary merchandise and therefore obviously cost more.²¹

7.4.2 An alternative gateway

Over the years the *Mossel Bay Advertiser* had vehemently defended the port's harbour rates and the port's position as the natural sea port and market to Oudtshoorn and the Little Karoo.²² However, it becomes obvious that the impending opening of the Zwartberg Pass in the midst of the depression and the area's

20 *Mossel Bay Advertiser*, 5/5/1886. See Appendix 11.

21 *Mossel Bay Advertiser*, 14/4/1886. They do not give a breakdown of costs.

22 *Mossel Bay Advertiser*, 27/8/1879, 17/12/1879, 25/2/1880, 8/2/1882 and 21/4/1886.

railway isolation, sparked off renewed fears among the Mossel Bay fraternity.

An analysis of the export figures for a period before the Zwartberg Pass was commenced (June to December 1880) compared with a period after the Pass was completed (June to December 1888)²³ confirms this fear. These periods were chosen because they are distinctly before and after the 1880s depression period (the number of companies exporting goods were taken as single entities in each month). Figures reveal that there was a 5,6% decrease in the number of companies exporting goods through the Mossel Bay Harbour. Also of interest is the fact that there was an increase of 54 companies (this could also mean that the same companies were exporting more often) exporting goods to Cape Town via the Mossel Bay Harbour in 1888 compared with the same period in 1880, while in a corresponding comparison there was a decrease of 70 companies using the Mossel Bay Harbour to export goods to Algoa Bay. The conclusion must be that Mossel Bay was being utilized more for goods travelling west than east and that the Zwartberg Pass was a factor in conveying goods northwards and eastwards. Here one must also acknowledge that the Zwartberg Pass was used to convey goods to Prince Albert Road Station, and then westward as well. However, this does not detract from the fact that goods were being transported to Algoa Bay and the Eastern Districts by means other than through the Mossel Bay Harbour.

23 *Mossel Bay Advertiser*, June to December 1880 compared with the period June to December 1888.

7.5 Post and Telecommunications.

The first regular postal communication service in the Cape Colony was established in 1806 between Cape Town and Stellenbosch. Here Khoi runners were used to convey the post three times a week.²⁴ On account of the difficult circumstances under which the post was delivered in this district and throughout the Colony, the fees were regarded as being high. The fees were, Cape Town to : Stellenbosch - 3d.; Swellendam - 7d.; Plettenberg Bay - 11d.; Algoa Bay - 11d.; Cradock and Fort Beaufort - 13d.²⁵ In 1844 the postal service undertook to convey post once a week between Cape Town and Grahamstown through Swellendam, George and Uitenhage, at a contract time of 135 hours (or five and a half days). However, it was often late on account of unbridged rivers and bad roads. Due to the work of the Central Roads Board and on account of the opening of the Montagu Pass in particular, this time was reduced to c. 70 hours in 1849.²⁶ The new routes were calculated as cutting off fourteen hours from previous times. The postal service now also ran three times a week and there was a reduction of 3d. in the price.²⁷

The field cornetcies of Attaquas Kloof, the Upper and Lower Olifants River, and Congo were 3,8,9 and 9 hours, respectively,

24 M.H. De Kock : *Economic History of South Africa*, p. 353.

25 J.J. Smit : Die paaie, passe en rivieroorgange in Suid-Kaapland, 1806-1858, p. 48-50.

26 *Ibid.*; M.A. Newman : *Biographical Memoir of John Montagu*, pp. 210-213.

27 J.E. Wilson : A changing rural Economy and its implications for the Overberg, 1838-1872.

off this main postal route. The delay in post reaching these areas therefore not only affected the people in general within this region, but also specifically hampered the field cornets in the execution of their duties. Parcels and/or letters from Cape Town with insufficient postage were left lying at the postal points until someone coincidentally collected them, while those with sufficient postage were forwarded to the toll at Cradock's Pass where they lay waiting to be collected. With the establishment of the town of Oudtshoorn in 1848 and the opening of the Montagu Pass the foundations for a postal service between George and Cango were laid, and the various problems, as mentioned above, were somewhat alleviated.²⁸

Telegraph links in the Cape Colony added to the developing communications network. A line linking Cape Town to Grahamstown was established in 1864 while Cape Town was linked to Kimberley 11 years later. The Zwartberg mountains were also crossed in 1875 in this widening network, and Oudtshoorn and Beaufort West were joined via Meiring's Poort. With the Telegraph Extension Bill of 1882 various Little Karoo towns were also serviced.²⁹ (The areas in the Little Karoo were Oudtshoorn to Ladismith (via Calitzdorp), and Uniondale to Willowmore.) It was, however, only in the second half of the 20th Century (1962/63) that telephone links between the Little and Great Karoo running over nearly the

28 A. Appel : Die distrik Oudtshoorn, pp. 94-97, 213.

29 *Ibid.*; M. De Kock : *Economic History of South Africa*, p. 354; *Oudtshoorn Courant*, 28/3/1882.

same route as the Zwartberg Pass were established.³⁰

The opening and use of Meiring's Poort as a postal route created a greater awareness and need for, and gave impetus to, a more effective and punctual postal service. The traders of Oudtshoorn and the Little Karoo were feeling the limitations of this once-weekly, weather susceptible, postal service.³¹ After an appeal was directed to the Postmaster-General for the Zwartberg Pass to replace Meiring's Poort as the postal route to Prince Albert, this became the route to be more regularly used. Where the post through Meiring's Poort to Prince Albert had taken 24 hours or more, the post over the Pass would now take less than 10 hours.³²

Jan Haak took over the postal contract amalgamating this with his passenger service and hereby ran an effective service for a number of years. Traffic over the Zwartberg Pass was increasing as many passengers *en route* to Cape Town (via the Prince Albert Road railway station) were now coming from George and Knysna as well. The fees payable were : Oudtshoorn to Prince Albert - £1 -7s -6d each way; Prince Albert to the railway station - 12s -6d each way; Parcels - 4 and-a-half pence per lb.³³ Thus as a direct result of the opening of the Zwartberg Pass the postal

30 E.R.G. Eastes (Telkom SA Ltd, Western Cape) - self, 5/12/1991.

31 A. Appel : Die distrik Oudtshoorn ..., pp. 94-97, 213; *Oudtshoorn Courant*, 31/5/1881 and 13/6/1882.

32 *Oudtshoorn Courant*, 23/7/1885 and 21/10/1886.

33 *Oudtshoorn Courant*, 13/1/1887, 2/6/1887 and 23/9/1886 (Advertisement).

service between Prince Albert and Oudtshoorn was placed on a more sound footing, ultimately running three times a week.

Perhaps A. Appel's words best sum up the situation, placing the opening of the Pass in its correct perspective. Economic considerations induced the inhabitants of the Little and Great Karoo to overcome severe topographical obstacles like the Swartberg Mountain Range to establish contact with one another. The nett result was the wider intergration of this region and its people into the Cape colonial and wider South African life.³⁴ The isolation that the intimidating Zwartberg Mountains had enforced was thus to all intents and purposes effectively neutralized with the opening of the Zwartberg Pass.

7.6 Miscellaneous factors

In 1871 a nugget of gold was found on the farm, Spreeu Fontein, near Prince Albert. Reports on the find and on a survey of the area were not promising. In 1891 another nugget found on an adjoining farm saw the area being thrown open to the public. Before the end of the year, 1 042 claims had been registered and 504 ounces of gold obtained.³⁵ The impact of this discovery on

34 A. Appel : Die distrik Oudtshoorn, p. 234.

35 A. 13-'91 Report upon the discovery of gold in the Division of Prince Albert : T. Bain - Assistant Commissioner, pp. 1-3 (CAD); T. Bain: Notes on the Geology of the Western Districts (*Cape Monthly Magazine*, September 1877, V.15, No.89); G. 45-'93 Report upon the Geology and Mineral Resources of the Division of Prince Albert and surrounding districts by A.R. Sawyer, pp. 1-24 (CAD); D. Gurling Pritchard: *The Karoo Gold Fields*, 6/6/1910 (from article in Fransie Pienaar Museum); N.J. Gillet : *The Prince Albert Gold-Fields - Their discovery and probable origin* (from article in Fransie Pienaar Museum).

the utilization of the Zwartberg Pass is not known, but whatever it might have been, or to what extent it might have increased the traffic flow, it was short-lived, for by 1895 only a few prospectors were left. By 1912 the Prince Albert Gold Fields Limited was placed under voluntary liquidation. This discovery was, of course, made at the time of numerous other small finds, and rumours of gold and gold fever throughout the country.³⁶

The impact of the building and opening of the Pass on various indigenous groups and/or individual people living in or around the Zwartberg mountains is difficult to determine with any accuracy. It is clear that various San or Khoi groups were living in Gamkaskloof and/or the surrounding areas over 200 years ago, or before the valley was settled. Physical evidence of the presence of the San and/or Khoi, such as paintings in caves in Gamkaskloof, and of spikes knocked into rocks to enable them to climb, or rob beehives, is still apparent today.³⁷ However, as the building of the Pass took place in the 1880s and does not appear to have impacted on the lives of the "people of the valley"³⁸ who replaced these inhabitants, it is highly unlikely that there were significant numbers of people and/or indigenous

36 *Oudtshoorn Courant*, 3/6/1886 and 10/3/1887. Millwood, near Knysna, was another case in point. Bain's report on the Millwood discovery is in 3/6/1886 edition.

37 H. Marincowitz : *Gamkaskloof*, p. 2; T.V. Bulpin: *Discovering Southern Africa*, p. 263. Mr J. van Zyl - Interview on 12/8/1991. Mr van Zyl was the bulldozer driver and in charge of a team of workers who built the Gamkaskloof Road (see chapter 9) in the early 1960s. Mr van Zyl is now the Roads Inspector of the Nuwe-Roggeveld Divisional Council stationed in Fraserburg.

38 See chapter 7.

groups still living in the area who would have been affected by the Pass.

There are also "stories" of various mountain dwellers and other characters of the area.³⁹ Again no documentary evidence exists as to the negative and/or otherwise influence the Pass might have had on them. However, the story of "Ou Nefie's" trading (smous) activities while the Pass was being built portray the economic gains he was able to receive from this venture.⁴⁰

39 S. van Waart : *Swartberg en sy mense*, pp. 21-32.

40 *Ibid.*, p. 29.

CHAPTER 8

ROAD MAINTENANCE, CONTRIBUTION DISPUTES, 20TH CENTURY DEVELOPMENT AND THE ZWARTBERG PASS

8.1 Road Maintenance

Once the Zwartberg Pass was opened it remained the responsibility of the Oudtshoorn and Prince Albert Divisional Councils to respectively maintain their sections of the road. The state of the pass and of roads throughout the Little Karoo was nonetheless often bad.¹

The maintenance of roads was a continuous point of contention between the government and the divisional councils. The government on occasion claimed it was absolving itself from any future liabilities by helping various divisional councils financially with certain major repairs.²

1 PWD 1/321 Letters Received, Secretaries : R. Bromley - Chief Inspector, 13/11/1891, no. 85; PWD 1/321 Letters Received, Secretaries : Chief Inspector - Secretary of Prince Albert D.C., 25/11/1891, no. 2/279; PWD 2/5/366 Prince Albert Zwartberg Pass : R. Bromley - Chief Inspector, 18/1/1892 : G. Grier - Chief Inspector, 23/6/1893. R. Bromley was T. Bain's son-in-law and G. Grier was the Chief Inspector's son; PWD 2/5/365 Prince Albert Seven Week's Poort : Chief Inspector - Secretary of P.W., 27/3/1892; PWD 2/5/368 Prince Albert Condition of Roads : W. Dickinson - Chief Inspector, 30/9/1904; PWD 2/5/325 Oudtshoorn to Zwartberg Pass : W. Dickinson - Chief Inspector, 29/6/1905; PWD 2/5/325 Road Oudtshoorn to George: W. Dickinson - Chief Inspector, 11/1/1906 (CAD).

2 *Oudtshoorn Courant*, 27/11/1884 (Minutes of the Prince Albert D.C. Meeting of 18/11/1884); PWD 2/5/319 Oudtshoorn Main Road to Zwartberg Pass : A. Sheard - Commissioner, 9/12/1893 (CAD).

The use of the lockshoe (remschoen) on wagons caused serious damage to the roads.³ Another practice which was detrimental to road surfaces was locking one or both hind wheels with a chain on the descent of a pass.⁴ This naturally created ruts in the roadway. Any rainfall in the area exacerbated the situation. Wind erosion was also a factor to be taken into consideration.⁵ Roads were often denuded down to the bare rock, and ruts and chasms sometimes up to three and four feet (0,9m to 1,2m) deep were created.⁶

The maintenance of the road from Oudtshoorn to the Zwartberg Pass, and the Pass itself often left much to be desired. They were very hollow in parts and covered with "muck instead of gravel and with clay and grass" and the work done often exhibited a "great want of intelligent supervision".⁷ The road was also often reduced to sand, clay and deep ruts, with inferior metalling being placed on the curves. The blame for this state

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- 3 PWD 1/762 Report Book, Roads : W. Grier - Commissioner, 13/12/1881 (CAD).
 - 4 C.G. Botha : *Social Life in the Cape Colony in the 18th Century*, p. 90.
 - 5 PWD 1/321 Letters Received, Secretaries of D.C.'s : R. Bromley - Chief Inspector, 31/3/1891, no. 42 (CAD); Mr R.V. Reilly : Interview on 18/9/1990. Mr Reilly mentioned that the road has to be graded \pm 4 times a year due to vehicle use and wind erosion.
 - 6 *The George and Knysna Herald*, 27/5/1885.
 - 7 PWD 2/5/325 Oudtshoorn Roads Generally : List of Main roads and Mountain Passes inspected during the period June 1903 to June 1906; Road Oudtshoorn to Zwartberg Pass : R. Bromley - Chief Engineer, 28/12/1907 (CAD).

of affairs fell on the Prince Albert Divisional Council.⁸ The poor state of the road through the Pass did not affect anyone as greatly as it did J. Haak, the post contractor. He complained that it was impossible to deliver post within the contract time due to the state of the road. On the odd occasion even Meiring's Poort was preferred above it.⁹

The "Roads and Passes Maintenance Act", Act No.38 of 1892, must be seen as an attempt to remedy a situation in which it appears divisional councils were not overly enthusiastic about maintaining their roads, and the Cape government was only willing to supply limited assistance. Here £200 was allocated to the Oudtshoorn Divisional Council and £200 to the Prince Albert Divisional Council. Under the same Act £300 was allocated to George for the Montagu Pass £275 to Mossel Bay and Oudtshoorn for Robinson's Pass, £450 to Knysna and Uniondale for Prince Alfred's Pass and £250 to Prince Albert and Oudtshoorn for Meiring's Poort. As can be seen from numerous reports succeeding this Act, the problems still remained. However, the situation was a vast improvement from the days of the utilization of Attaquas Kloof and the Cradock Pass. The roads were solidly grounded and formed the basis of many roads built in 20th century.

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- 8 PWD 2/5/366 Prince Albert Zwartberg Pass, Maintenance of : R. Bromley - Chief Inspector, 18/1/1892, and, G. Grier - Chief Inspector, 23/6/1893 (CAD).
- 9 PWD 1/321 Letters Received, Secretaries of D.C.'s : J. Haak - Post Master General, 25/2/1891 (CAD).

8.2 Contribution Disputes

Not only was road maintenance an issue but localism reared itself once again in the form of haggling over the contributions the various divisional councils had to make towards maintenance!

According to Section 24 of Act 10 of 1864,¹⁰ Oudtshoorn had to pay George £500 per annum for the maintenance of the Montagu Pass. In time this was reduced to £250. In 1879 the Oudtshoorn Divisional Council petitioned the government to grant further relief to her as she felt that the inhabitants of her division were using the Robinson Pass [it was a better and closer route to Mossel Bay by approximately 18 miles (29 km)] to Mossel Bay in preference to the Montagu Pass and she had to pay £100 per annum for the maintenance of the Robinson Pass.¹¹ The opposition from George to the petition from Oudtshoorn makes less sense when one realizes that for the period 1 July 1877 to 30 June 1879 she only contributed £50 -9s -2d of the total amount of £1 150 for the maintenance of the Montagu Pass.¹² While it cannot be denied that Oudtshoorn had benefited from the use of the Montagu Pass over the years, the Oudtshoorn charge that Beaufort West benefited equally from her vehicles travelling to Mossel Bay,¹³

10 Act No.10 of 1864 - *For the Construction and Maintenance of the Main Roads of the Colony* : pp. 1 and 5. (Cape Archives, CCP 6/2/1/7)

11 A. 26-'79 Petition of the Oudtshoorn Divisional Council, 10/7/1879, pp. 1-2 (CAD).

12 A. 23-'79 Select Committee Report on Oudtshoorn's Road Contributions, August 1879, pp. 20-21 (CAD).

13 *Ibid.*

is nonsensical. Returns for the period November 1880 to January 1881 show that only 47 out of 422 vehicles using Meiring's Poort, travelling either north or south, were from Beaufort West to George or Mossel Bay, or visa versa.¹⁴ One may also justifiably question why Beaufort West traffic to or from Mossel Bay would use the Montagu Pass in preference to the Robinson Pass? It is clear that both divisions (Oudtshoorn and George) were self-seeking and that a spirit of localism was present which these various communication links had not yet helped to eradicate. What probably swung the decision in favour of Oudtshoorn having its contribution dropped was the average of £273 "toll and ferry fees" they received in comparison to the average of £658 "toll and ferry fees" George received for the period 1873 to 1878.

On 9 September 1879 Beaufort West petitioned the government for relief in maintaining Meiring's Poort.¹⁵ Although no portion of the Poort was in the Beaufort West district, it is also clear that she had benefited from the Poort over the years. Now that she had a railway link from which she benefited, she also used the pass less frequently, the main users now being the inhabitants of the Oudtshoorn division.¹⁶ Mr Keyter's (Member of the Legislative Assembly for Oudtshoorn) legalistic answer that the road was constructed through Beaufort West's influence and

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- 14 A. 8-'81 Select Committee Report on the Beaufort West Road Contribution, May 1881, pp. vii-xii (CAD).
 - 15 A. 22-'80 Select Committee Report on the Beaufort West Road Contribution, July 1880, p. 3 (CAD).
 - 16 A. 8-'81 Select Committee Report on the Beaufort West Road Contribution, May 1881 (CAD). See Appendix 12 for traffic statistics for the period November 1880 to January 1881.

that they had thus engaged to keep it in order, in answer to whether Beaufort West should be relieved or not,¹⁷ could have been questioned when set against the Oudtshoorn Divisional Council's July petition asking for relief on the Montagu Pass. Again it becomes apparent that both parties, Oudtshoorn again and this time also Beaufort West, were self-seeking. The Select Committee recommended that Oudtshoorn help Beaufort West with £200 to maintain the Poort.

The issue of the maintenance of Meiring's Poort came to the forefront once again after the floods of May 1885. This time, however, the building of the Zwartberg Pass was a factor which was added to the deliberations. The Prince Albert Divisional Council did not want the Poort reopened and requested that the building of the Zwartberg Pass be expedited.¹⁸

By comparison, the inhabitants of the Oudtshoorn Division still derived benefit from Meiring's Poort as the Zwartberg Pass was not their answer to a link with Beaufort West as it (the Pass) lay too far to the west. Other regions to benefit from Meiring's Poort were Victoria West, Carnavon, Murraysburg, Fraserburg, Richmond, Hanover and Graaff Reinet, as stock to and from these towns and divisions passed through the Poort. Both Beaufort West and Oudtshoorn separately and jointly petitioned Parliament for

17 A. 22-'80 Select Committee Report on the Beaufort West Road Contribution, July 1880, p. 3 (CAD); *Oudtshoorn Courant*, 31/5/1881 and 21/6/1881; *Beaufort Courier*, 14/6/1881.

18 PWD 2/152 Letters Received, D.C.'s : Prince Albert Divisional Council Meeting Minutes, 4/7/1885 (CAD); *Mossel Bay Advertiser*, 5/8/1885.

a maintenance burden re-adjustment.¹⁹

The Maintenance of Roads and Passes Act (Act 38 of 1892) again did not adequately solve the problem as there was still confusion and debate on liability and contributions.²⁰ All in all it is apparent that road communication links were bringing an end to economic and social isolation. The disputes highlight that above all what was needed was adequate regional government and administrative control and a comprehensive communication network co-ordination programme.

8.3 Road Development in the 20th Century.

The decision to divide the responsibility for roads and railways at the time of Union, and to place the railways under the central government and roads under provincial management, was perhaps at that stage the correct one to take. However, by 1925 hardly any money had been spent by the central government on roads, while railways and harbours had received the 'lion's share' of finance. This fact, coupled with the non-cooperation between the four provinces in mapping out an efficient road network and policy led to the deterioration of roads. The lack of cooperation between the provinces was in fact an extension of the localistic and

19 A. 2-'86 : Petition of Beaufort West, pp. 1-2; A. 15-'86 Select Committee Report on the Maintenance of Meiring's Poort, 10/6/1886, pp. i-iv (See Appendix A to Report) (CAD); *Beaufort Courier*, 18/5/1886 and 8/6/1886; *Oudtshoorn Courant*, 13/5/1886.

20 PWD 2/5/366 Prince Albert Divisional Council : Fred Brazier - Commissioner, 19/12/1892; PWD 2/5/365 Prince Albert Meiring's Poort Road : Henry de Smidt - Secretary for P.W., 20/5/1896 (CAD).

self-seeking interests of regions of the 19th Century.

Despite the fact that roads were neglected in favour of the railways with regard to central government financing, road transport had become a serious rival to railway transport. The ideal that long-distance traffic should move by railway while roads should act as feeders to the railway system, was now being overthrown, as road transport became popular once again. The Government therefore appointed a Commission of Inquiry, under the chairmanship of J.C. le Roux, to investigate road competition.²¹ Out of the inquiry came suggestions how to deal with road competition, and the establishment of a National Road Board.

The Motor Carrier Transportation Act was passed in 1930 to regulate competition between rail and road transportation. The Southern Cape and Little Karoo, through road and railway development during the later 19th and earlier 20th Centuries, had become more integrated into a wider Cape Colony and South Africa. This area, therefore, felt the social and economic effects of the Vehicle Transport Act. The situation in fact paralleled the 1880-1910 period for Mossel Bay, as she (Mossel Bay) ceded her "natural backyard" to the Port Elizabeth and Cape Town harbours. During this earlier period railway transport had superseded transport by ox-wagon. Railway transport had thus monopolized long distance communication and with the Zwartberg Pass acting as a feeder to Prince Albert Road Station, and Oudtshoorn being

21 B.C.Floor : *The History of National Roads in South Africa*, pp. 1 and 3; D.E. Nel : *Die Hawe en Fabrieksnywerhede van Mosselbaai*, p. 121.

linked to the Midlands line at Klipplaat, the Mossel Bay harbour had suffered. However, the arrival of the motor vehicle created an opportunity for private entrepreneurs to fill the vacuum in a communication network system which was not totally adequate.²² At the time the road distance from Mossel Bay to Beaufort West was 167 miles (269 km), while the railway line distance was 441, a difference of 274 miles.

Trucks transported general commodities from Mossel Bay to Beaufort West, Fraserburg, Prince Albert, Victoria West and Carnarvon during the period up to the 1930 Act, and the Zwartberg Pass was able to briefly relive its glory years. However, with the passing of this Act, the farmers of Prince Albert and the Karoo now had to obtain their general commodities from Cape Town once again instead of from their nearest harbour. Some of the natural consequences which resulted were that farmers took to transporting their own products, less attention was given to farming and production fell.²³

Floor's statement, that when the National Roads Act (Act 42 of 1935 which established the National Road Board) was passed, the roads in South Africa were relics of the ox wagon days is correct, in that it is an assessment of the condition of roads in South Africa at the time, but it does not afford due credit

22 D.E. Nel : *Die Hawe en Fabrieksnywerhede van Mosselbaai*, pp. 119-120.

23 B.C. Floor : *The History of National Roads in South Africa*, p. 4; D. Nel : *Die Hawe en Fabrieksnywerhede van Mosselbaai* pp. 20, 117, 118 and 122.

to our 19th Century road engineers like Thomas Bain and his father, Andrew Geddes. Floor states that the paths used by the indigenous population became wagon tracks and then earth roads, and then in time the earth roads were graveled.²⁴ This is probably true for many roads, but certainly not for all in the Cape Colony, particularly not for passes like the Zwartberg. Bickering and jealousies soon hamstrung the Board as it planned rates, laid down standards, provided finance and supervised construction. It was the provincial authorities who actually built the roads and this duality was the cause of the friction.²⁵

The National Road Board's policy of planning fourteen national roads covering 5 396 miles (8 682 km) of trunk roads was criticized. Oudtshoorn, too, was unhappy with the planned N12 which would run from George to Beaufort West via the Outeniqua Pass and Meiring's Poort. She wanted Mossel Bay as the starting point and the road to run over the Robinson Pass and then traverse the whole Little Karoo.²⁶ The Road Board could, however, not please everyone all of the time. Provincialism and local politics continued to play a role even when the National Road Board was replaced by the National Transport Commission in 1948.²⁷

24 B.C. Floor : *The History of National Roads in South Africa*, p. 14.

25 T.V. Bulpin : *Discovering Southern Africa*, p. xvii.

26 *Ibid.*, p. xvi.

27 B.C. Floor : *The History of National Roads in South Africa*, p. 89.

With regard to the condition of, and transporting of goods on, roads in South Africa, the circle has come full cycle once again. Roads are again in bad need of repair as the last decade has seen goods transported by road rather than by rail.²⁸ The Zwartberg Pass is still utilized, but now remains just a link between two towns and is thus out of its league as a major carrier of goods in a "united" South Africa.

28 SABC Television Network Programme, 26/11/1990. Report on condition of roads in South Africa.



55. The visit of Dr du Plessis to Gamkaskloof.

CHAPTER 9

GAMKASKLOOF

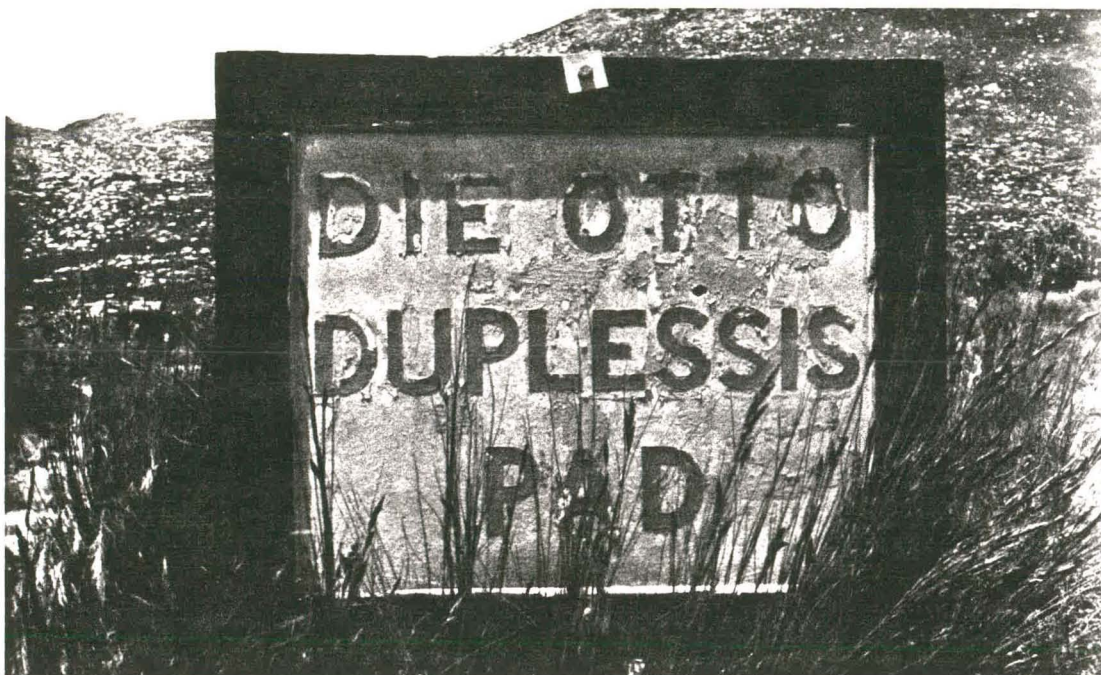
9.1 Overview

The valley has recently (1962) been linked to the Zwartberg Mountain Pass by a road running from near the top of the pass. It was this road, the Otto du Plessis road, that finally carried a 19th Century culture and people into the 20th Century. Were it not for the Zwartberg Pass the road into Gamkaskloof would most likely never have been built, or alternatively had it been built at high cost along the only other semi-viable route, the Gamkaskloof Dam would not have been built.

It seems almost certain that the valley was originally inhabited by San and/or Khoi groups prior to the first recorded European occupation of 1841.¹ From the time of the first European occupation, the history of the valley may be roughly divided into two general phases, the pre- and post-road phases, or, into three more specific phases, namely: 1841-1921, 1921-1962 and 1962-1992.

During the first period the railway development that was taking place, the building of the Zwartberg Pass, the 1899 to 1902 Anglo-Boer War, and the First World War barely had an impact on the valley. It is not, however, quite true to say that during this period the people of the valley lived a totally isolated

1 *Ibid.*; J. Burman : *The Little Karoo*, p. 77; M. Morgan : *Last people in Hell* (*You*, 26/9/1991); B.M. du Toit : *People of the Valley-Life in an isolated Afrikaner Community in South Africa*, p. 14.



56. Two signs near the summit of the Zwartberg Pass pointing the way to Gamkaskloof.

lifestyle, for Denys Reitz visited the valley² and there are records of a J.H. Mosterd (sic) from Gamkaspoot paying road rates.³

The period from 1921 to 1962 may be seen as the second or transitionary stage.⁴ During this stage the outside world started penetrating the valley with more insistence. This outside penetration came through a D.R.C. school being established⁵, a peddler trading with people of the valley⁶, exposure to motor vehicles⁷, the purchase of radios and newspapers⁸, and inquisitive journalists, photographers and

2 D. Reitz : *Commando - A Boer Journal of the Boer War*, p. 272.

3 4/PAL 8/3/1/1 : Prince Albert Cash Books, February 1892 - June 1894 (CAD); Anon: Padlang's Hel Toe (*Die Landbouweekblad*, 21/8/1962, p. 16) - Here a Mr J.H. Mostert is mentioned, age 74 - He must surely have been a descendent.

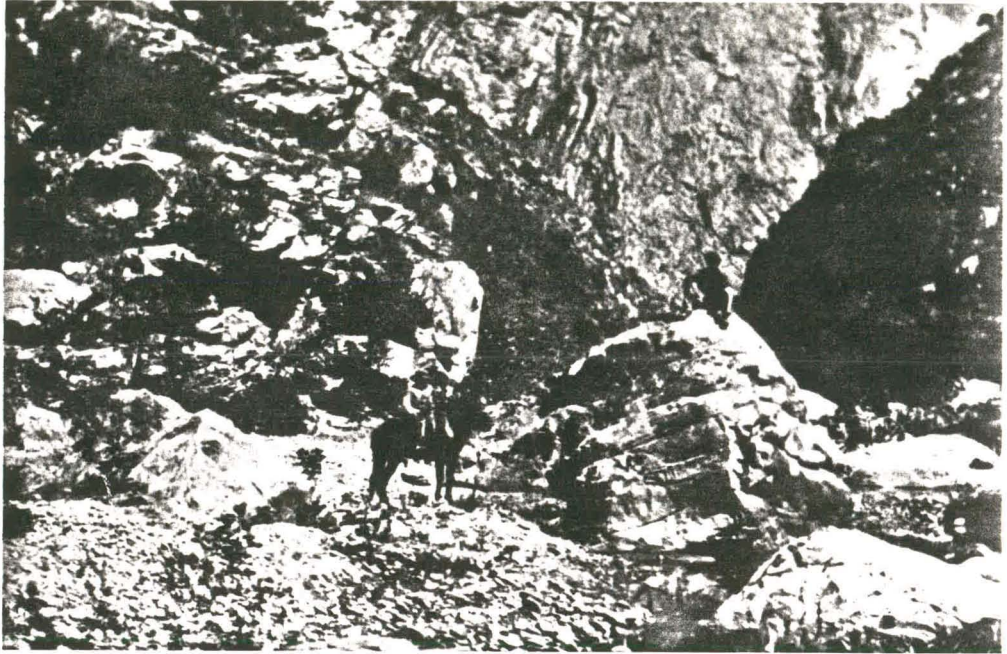
4 B.M. du Toit : *People of the Valley*, p. 75.

5 We went to Hell (*The Cape Argus*, Magazine Section, 16/5/1959); D. van Pletzen : Gamkaskloof (*South African Panorama*, November 1974); A le Roux: Die Hel loop leeg (*Sarie Marais*, 14/1/1987), p. 32; T.V. Bulpin : *Discovering Southern Africa*, p. 263.

6 B.M. du Toit : *People of the Valley*, p. 75.

7 *Ibid.*, pp. 76-77; Sersant Bokkie van der Merwe: Konstabel dring die "Hel" binne (*Nongqai*, January 1960, pp. 23-26, 71); Anon : Grootpad Hel Toe (*Die Landbouweekblad*, 28 February 1961, p. 27); C. Morgan: The Road to Hell (*Evening Post, Weekend Magazine* 19/2/1966, p. 1).

8 The Wanderers : Visit to Hell (*The Cape Argus*, 11/5/1959); Anon: We went to Hell (*The Cape Argus*, Magazine Section, 16/5/1959).



57.i. An entrance to Gamkaskloof taken before the dam and road were built.



57.ii. The original mode of transport in Gamkaskloof.

adventurers visiting the valley⁹.

The third stage/period, from the opening of the road into the valley up to the present day, has seen the most dramatic change in the valley.

9.2 "The Road to Hell"¹⁰

The then Administrator of the Cape Province, Dr J.H.O. (Otto) du Plessis, visited the valley in 1959 and promised the people a road. On this trip, Dr du Plessis was accompanied by nine journalists and Messrs J. Grobbelaar (the MPC for Beaufort West), F. van der Merwe (the Mayor of Prince Albert) and S.P.S. Luttig (from Prince Albert).¹¹

The major motivation for the road, as implied in many of the articles written, appears to have been for the benefit of the people of the valley. Dr du Plessis' statement that he had

9 Willem van Warmelo : Gamkaskloof (*Nederlandse Post*, Desember 1953, p. 13); Anon : The road to Hell is paved with - rocks, mud, sand (*The Cape Argus*, 15/5/1959); Anon : We went to Hell, *op. cit.*; Anon : Boerdery in die Hel (*Die Landbouweekblad*, 19/5/1959); Peter Younghusband : Women in the Hell (*Femina and Woman's Style*, 23/7/1959, pp. 18-21); Sersant Bokkie van der Merwe, *op. cit.*; Grootpad Hel Toe, *op. cit.*; Nan Henning: Nan Henning gaan kyk waar "Die Hel" is (*Justitia*, April 1962, pp. 15, 57-58); Anon : Padlangs Hel Toe (*Die Landbouweekblad*, 21 Augustus 1962, pp. 16-17); Nine journalists accompanied Dr Otto du Plessis; S. van Waart : *Kannalandse Kamee*, pp. 23-34.

10 C. Morgan : The Road to Hell (*Evening Post*, 19/2/1966, p. 1).

11 Anon : The Road to Hell is paved with - rocks, mud, sand (*The Cape Argus*, 15/5/1959).



58.i. The road into the valley.



58.ii. A view of the pass into the Gamkaskloof valley.

decided that the road was necessary¹² should not detract from the major contribution he made to have the road built, but does have a tinge of politics. This fact, in addition to the fanfare of arriving in the valley on a white stallion, called Venus¹³, accompanied by so many journalists, certainly ensured the event would receive maximum publicity. What many people did not realize and/or publicize was that the Department of Forestry could also have benefited from the road¹⁴, for the only viable road into the valley could have been an extension of the existing Forestry Road, and this could therefore have been of great value to them for fire fighting purposes. Another major motivation for the road to be built would have been that since 1912 surveys of the Gamka River had started and from August 1924 farmers in the Calitzdorp district had been petitioning for the construction of a storage dam in the Gamkaspoort¹⁵. Although a full survey of the dam site as well as of the basin was only completed in 1961¹⁶ (while the building of the road was in progress), engineers must have had a pretty good idea as to where they were going to locate the dam a long time before this.

12 Anon : The road to Hell is paved with - rocks, mud, sand (*The Cape Argus*, 15/5/1959).

13 *Ibid.*

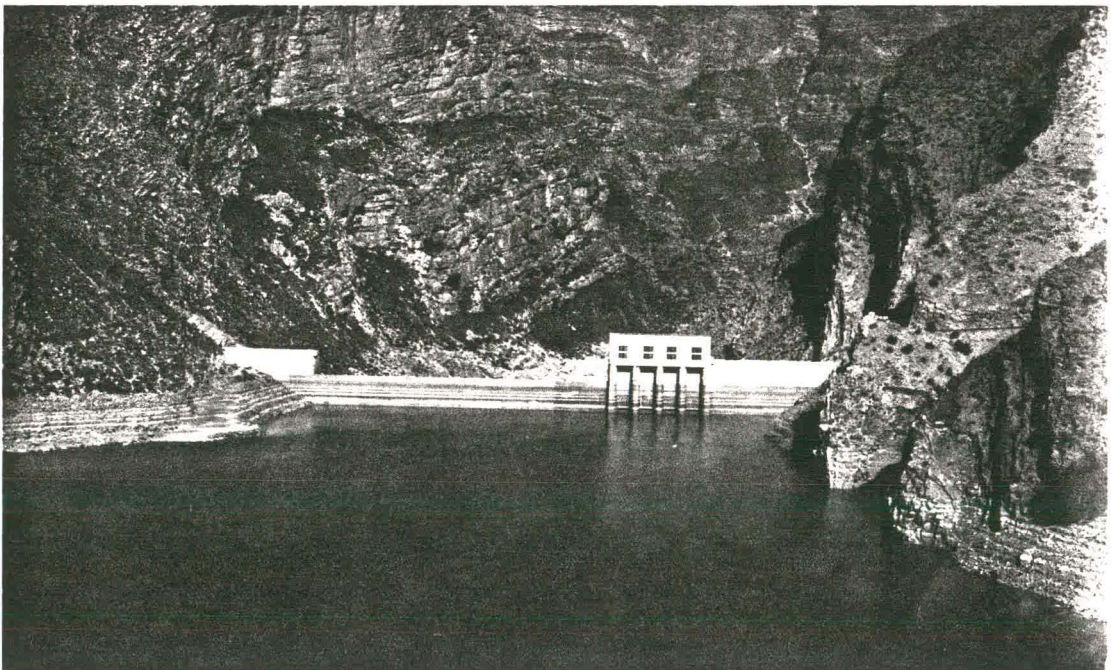
14 Interview with Mr P. Marincowitz, 12/9/1991.

15 W.P. H-'62 : *Report on the Gamkaspoort Government Water Work*, P.H. Nel - The Hon. The Minister of Agriculture and Forestry, 14/2/1936.

16 W.P. H-'62 : *Report on the Gamkapoort Government Water Work*, 1962-1963, p. 4.



59.i. A view from Bosluiskloof on route to the Gamkaskloof Dam.



59.ii. The Gamkaskloof Dam.

The building of this dam would have (and ultimately did) cut off the old route the majority of the people of the valley had been using to reach the outside world. The purpose of the dam was to control the flood waters of the Gamka and Dwyka Rivers and to provide an increased and more assured water supply for irrigation purposes.¹⁷ The Gamkaspoot Dam was ultimately completed in 1969.¹⁸

It was decided to extend the old Forestry Road which ran from the Zwartberg Pass towards Gamkaspoot for approximately 6 miles (10 km) and ended at the Forestry Outstation of Kliphuis Vlei.¹⁹ The new road was not really surveyed but the route was prepared by Mr R.V. Reilly who used an abney level in marking out the line that the Foreman/Bulldozer Operator, Mr J.H. van Zyl, was to follow.²⁰ With an intended maximum gradient of 1 : 8 Mr Kosie van Zyl initially followed the route flagged out by Mr R. Reilly, eventually "getting the hang of it" and becoming "quite good at continuing on his own".²¹

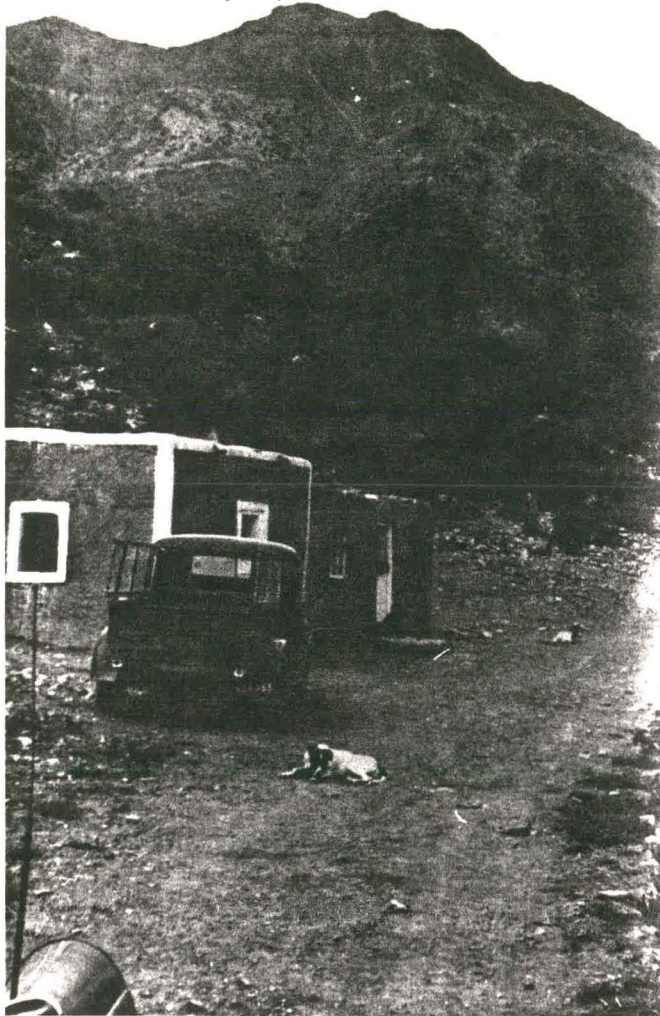
17 *Ibid.*, p. 3.

18 W.P. G-'67 : *Supplementary Report of the Proposed Gamkapoort Government Water Work, 1967-1968*, p. 3; J. Burman : *The Little Karoo*, p. 86.

19 Interview with Mr J.H. van Zyl, 12/8/1991. Mr van Zyl is now Roads Inspector of the Nuwe-Roggeveld Divisional Council, Fraserburg.

20 Interview with Mr R.V. Reilly, Technical Assistant (Civil), Oudshoorn, 13/8/1991.

21 *Ibid.*



60.i. One of the erstwhile "bakkies" of Gamkaskloof.



60.ii. A view of the former school in Gamkaskloof.

Mr Kosie van Zyl, starting in March 1960, took two years and five months to complete the Gamkaspoort road. He was helped by twelve labourers who all slept along with him on site.²² On his bulldozer Mr van Zyl became the real "hero" of the road, ultimately receiving his true reward in the warm-heartedness by which he was received by the people of the valley.²³

The road down into the valley was the most difficult to build with a gradient of 1 : 6 in places and with a drop of 579 metres in just over three kms to be negotiated with the bulldozer.²⁴ A little dynamite was used but the road was mainly (and manly) bulldozed by Koos and his men. The road ultimately cost R28 000 to build.

The impact the road had on the valley is clearly evident. Dr Otto du Plessis' appeal that he hoped the people did not sell out²⁵, along with Dr Nico Malan's statement on the opening of the road in August 1962, that a road was a good thing but that it could lead to the emptying of a place,²⁶ encapsulates what in fact did eventually occur. The valley has become depopulated over the last 30 years. Statistics show that from 73 inhabitants

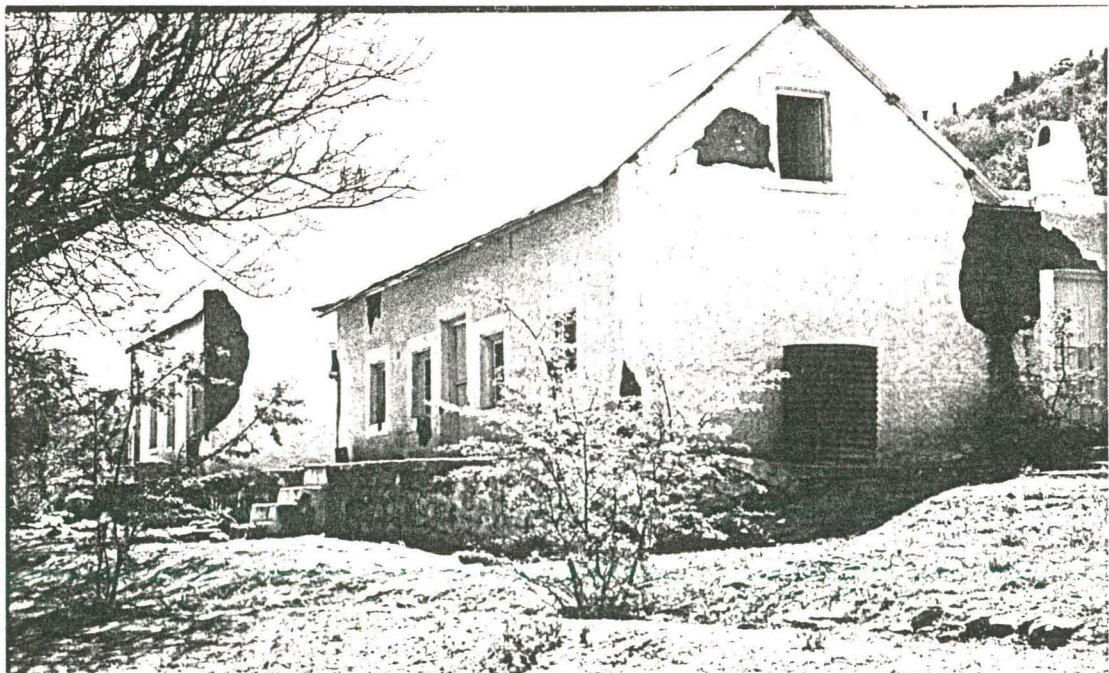
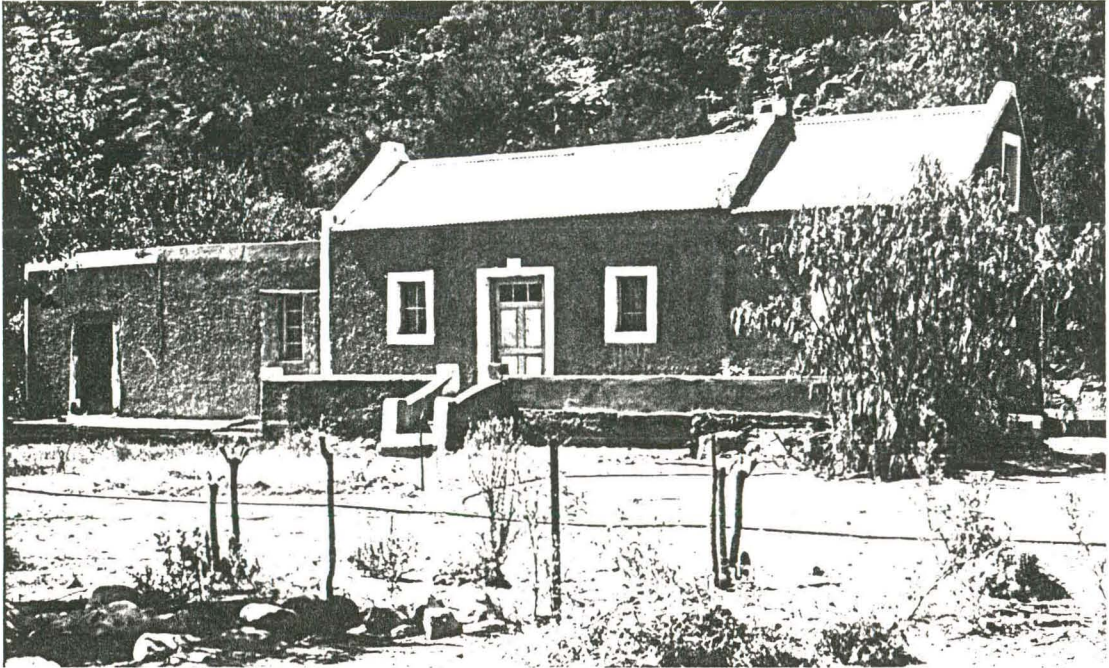
22 Interview with Mr J.H. van Zyl, 12/8/1991.

23 *Ibid.*

24 Gradient measured by Mr M.D. Radford and self on 1/1/1991 using an abney level; P.E. Raper: *Dictionary of Southern African Place Names*, p. 93.

25 Anon : The Road to Hell is paved with - rocks, mud, sand (*The Cape Argus*, 15/5/1959).

26 Interview with Mr J.H. van Zyl, 12/8/1991.



61. Two buildings in Gamkaskloof, the second (previously the school) in need of repair.

in 1937 ²⁷, 95 in 1952 ²⁸, 85 in 1965 ²⁹, 52 in 1967 ³⁰, 35 in 1977 ³¹, \pm 10 in 1987 ³² and \pm 6 in 1991 ³³, to no original inhabitants left in 1992, a major if not entire depopulation has come in the post-road period. In an interview with Mr P.G. Swanepoel in January 1991 he indicated that they were leaving the valley to settle in Prince Albert during the second half of 1991. There was still a "coloured" family looking after the farm the doctors from Tygerberg had bought.

The impact of the road on the valley was not only felt through the decrease in inhabitants. Within a few years of the road being opened there were 10 light delivery vehicles (bakkies) in the valley³⁴ and the inhabitants were able to "farm road wise"

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- 27 B.M. du Toit: *People of the Valley*, p. 26. He uses evidence from a Rev L.E. du Toit, a minister from Prince Albert, and one of the first ministers to the valley.
- 28 *Ibid.*
- 29 *Ibid.*; Anon : At last - A direct line to "Hell" (*The Cape Times Weekend Magazine*, 19/6/1965). Here mention is made of 10 families.
- 30 S. van Niekerk : Juffrou in "Die Hel" (*Dagbreek*, Bylaag, 14/5/1967, p. 7).
- 31 J. Helberg: They named it after Hell (*Family Radio and T.V.*, 5-11/9/1977, p. 47).
- 32 A. le Roux : Die Hel loop leeg (*Sarie Marais*, 14/1/1987, pp. 29-30). Here mention is made of 1 white family, 2 coloured families and 1 young man. The "white family" must have been Mr P.J. Swanepoel and his wife, Magriet.
- 33 M. Morgan : Last people in Hel (*You*, 26/9/1991, pp. 244-26); Interview with Mr P.J. Swanepoel, 1/1/1991.
- 34 B.M. du Toit : Meganisasie en Kultuurverandering (*Tydskrif vir Geesteswetenskappe*, vol. 9, No. 2, 1969, p. 122).

through the sale of their "wet fruit"³⁵ produce as opposed to the dry fruit for which the valley had become renowned³⁶. However, the implied prediction that the production of onion seed, averaging 40 to 50 lbs per bag in the valley, as opposed to a normal "outside" average of 30 lbs, would increase as fertilizer would be used for the first time,³⁷ did not really have a chance to materialize.

There were other consequences of the road being built. Closely linked to the opening up of the road communication, was the telephone line which connected the valley to the outside world in 1965.³⁸ This link further removed the 'filter' that had protected the valley from the outside world³⁹ and ushered the inhabitants fully into the 20th Century.

Not all the impact has been negative. The Department of Nature Conservation has taken an active interest in the valley and has bought a number of farms. The size of the original farms of the 19th Century have been drastically reduced over the past century mainly through legacy sub-divisions, and could therefore not

35 Anon : Padlang's Hel Toe (*Die Landbouweekblad*, 21/8/1962, pp. 16-17).

36 Anon : Grootpad Hel Toe (*Die Landbouweekblad*, 28/2/1961, p. 27).

37 *Ibid.*

38 Anon : At last - A direct line to "Hell" (*The Cape Times Weekend Magazine*, 19/6/1965); Letter: E.R.G. Eastes (Telkom) - self, 5/12/1991. The line was built from April to June 1965.

39 B.M. du Toit : *People of the Valley*, p. 91.

realistically have been further sub-divided. Nature Conservation also keeps a count of all vehicles entering the valley⁴⁰ and, barring mismanagement and/or a lack of finance, the future of the valley looks to be in good hands.

With the migration of the inhabitants from the valley, Gamkaskloof has become a lonely place: ⁴¹ aloes and "suikerbos" have started taking over, and it has been left to Nature Conservation and a few doctors from Tygerberg⁴² (who ironically probably bought their farm in the valley to escape from the stresses of the 20th Century!) to restore and maintain Gamkaskloof.

40 Interview with Mr P.J. Swanepoel, 1/1/1991, monitoring for Nature Conservation: From 3/12/1990 to 1/1/1991 91 vehicles entered the valley i.e. \pm 3 a day; Traffic counts for Main Road 00369 and Gamkaskloof section from Mr D.A. Parker, C.P.A. Roads and Traffic Administration Branch - The equivalent vehicle usage (EVU-Monitoring the road over 2 days with an intervening night) was: 1984 = 29 vehicles, 1985 = 27 vehicles, 1988 = 7 vehicles on average.

41 Interview with Mr P.J. Swanepoel, *op. cit.*; M. Morgan: Last People in Hell (You, 26/9/1991, p. 24).

42 Interview with Mr P.J. Swanepoel, *op. cit.*; M. Morgan, *op. cit.*, pp. 24-26.

CHAPTER 10

CONCLUSION

Many projects undertaken by civil engineers have changed the pattern of life of whole communities. They have enabled people to enjoy a better and higher standard of living.¹ This was arguably also the situation which resulted from the building of the Zwartberg Pass and, more recently, the road to Gamkaskloof.

Although it is difficult to specifically quantify all material/economic and also resultant social benefits, one is safe in drawing the following conclusions:

The building and opening of the Zwartberg Pass led to a saving of time, distance and animals for travellers who generally used it in preference to Meiring's Poort en route to Prince Albert and Prince Albert Road railway station. Thus a saving of 34 miles (21 km), the equivalent of a two to three day trip with a fully laden ox wagon, was effected.

Another trade route was placed at the disposal of the inhabitants of the regions on either side of the Pass. This route was a more direct route for the trip between Oudtshoorn and Prince Albert than Meiring's Poort was. It was also a gateway/feeder to the railway line at Prince Albert Road Station and to the better and bigger markets of Beaufort West and Kimberley.

1 J.P.M. Pannell : *An Illustrated history of Civil Engineering*, p. 13.

The Zwartberg Pass was to all practical intents and purposes an "all weather route" and would thus serve the people of the region well when either Meiring's Poort and/or Seven Weeks Poort, both flood susceptible routes, were impassable.

In opening up another trade route it at the same time gave the inhabitants of this region a greater opportunity of choice. The people thus could and did become more socially and economically mobile as the railway line was now more easily accessible. The limited horizons of the people of the Little Karoo were thus expanded.

The Zwartberg Pass was the route used to usher in a more regular, effective and efficient postal service between the Little and Great Karoos.² Here J. Haak saw an opportunity and developed the postal as well as a passenger service over this route. The pass was also the route followed in the erection of the 20th century telephone links over the Zwartberg range, and along with the road to Gamkaskloof, enabled the people of this valley to be telephonically linked to the "outside" world.

2 A. Appel : Die distrik Oudtshoorn ..., pp. 213-216.

The Zwartberg Pass was the last great pass, and arguably the most majestic, completed by Thomas Bain. It was also the last great work of the era of pass building during the second half of 19th century. It was/is thus a fitting epitaph to the skills of our early civil engineers and in particular to Thomas Charles John Bain. That the Klipspringer Pass of the Karoo, opened in 1992, has a similar environment-friendly appearance, and was built using the dry stone pack technique, affords further credit to these 19th Century road building pioneers.

The opening of the Zwartberg Pass also unlocked Crown Land on the Zwartberg Mountain previously unused. Not only was "land" available for use (grazing etc.), but economic opportunities previously unavailable were created : the Toll keepers on the northern and southern sides of the pass benefitted, as did J. Haak with his postal and passenger service.

In general, the building of the Zwartberg Pass as well as Meiring's Poort and Seven Weeks Poort helped to bring the inhabitants of the Little and Great Karoos closer together. These areas became less insular and isolated and more of a cohesive economic and social unit. Mossel Bay was linked to the sheep country of Beaufort West and Beaufort West in turn to the coastal region and harbour possibilities of Mossel Bay. As people generally became more mobile and as the process of

urbanization and industrialization reached out into the 20th Century to further affect these areas (including Gamkaskloof in the 1960s to 1980s), a process of depopulation within the Little Karoo was started.

The building of the Zwartberg Pass linked to the extension of railway communications and the general economic development of the country areas of the greater Southern Cape region, did have some negative influences. Again these are difficult to quantify. It may however be generally stated that:

The harbour facilities at Mossel Bay were not used to their full potential as traffic began flowing north, north east, and eastward on a more regular and consistent basis. This meant that the coastal region of Mossel Bay ceded "her backyard"³ as a consequence of greater commercial forces at work. Thus the agricultural potential of the Little Karoo and the greater Southern Cape region was not fully realized during this period.

With these greater economic and developmental forces at work the Zwartberg Pass was also destined to have a limited life of full and regular use. The pass was only really used to its full potential for approximately two decades, that is, until such time

3 D.E. Nel : *Die Hawe en Fabrieksnywerhede van Mosselbaai*, p. 20.

as Oudtshoorn and Mossel Bay were linked by railway to the greater South African railway network.

The building of the Zwartberg Pass affected settlements like Klaarstroom and De Rust on the Meiring's Poort/Beaufort West line. Less traffic took the Meiring's Poort option as a result of the building of the Zwartberg Pass and because Beaufort West was linked to Cape Town by a railway line in the 1880s.

While this may be the case, the fact that the pass was so skilfully built and thus still stands today as a National Monument to the credit of Thomas Bain, affords it a magnetic appeal. It is moreover still used as a more direct link between Oudtshoorn and Prince Albert and thus to save time.

One can hardly do better than to conclude with the words of Robert Louis Stevenson:

When a road is once built, it is a strange thing how it collects traffic, how every year it goes on, more and more people are found ... thereon, and others are raised up to repair it and perpetuate it and keep it alive; so that perhaps even this road of ours may from reparation to reparation continue to exist and be useful hundreds and hundreds of years after we are mingled in the dust.⁴

4 Robert Louis Stevenson : Address to chiefs on the opening of the Road of Gratitude, October 1894 : As quoted by E.E. Mossop, *Old Cape Highways*, Foreword.

SUMMARY

A study of the planning and construction of the Swartberg Pass brings to the fore a number of interesting factors with reference to civil engineering and social and economic aspects and the creation of a communications infrastructure in the later 19th Century.

The opening of the pass facilitated a saving in time and effort for the 19th Century traveller journeying between Oudtshoorn and Prince Albert. It thus also constituted an alternative trade link for the inhabitants of the Little and Great Karoo.

There is little doubt that socially and economically the inhabitants of the area benefited from the pass. It contributed greatly in creating a more effective and regular postal and passenger service for the area.

The Swartberg Pass was the last and arguably the most impressive and awe-inspiring of the passes built by Thomas Bain in the 19th Century. The fact that it is still in use today is a testimony in itself to the skills and building methods of our civil engineering pioneers.

The Swartberg Pass played an important role in enhancing the communication network between the Little and Great Karoo during the last two decades of the 19th Century. From the perspective of the utilization of the pass, it is a pity that after only two decades of good use, road transportation was usurped by rail.

transport.

However, the pass has recently been declared a National Monument and remains in constant use today as an attraction to tourists.

OPSOMMING

'n Bestudering van die beplanning, en bou van die Swartbergpas het verskeie interesantehede na vore gebring wat die belangrikheid van sulke aktiwiteite in die daarstelling van die nodige infrastruktuur gedurende die vorige eeu onderstreep.

Die opening van die pas het 'n besparing van tyd vir die 19de eeuse reisiger, wat tussen Oudtshoorn en Prins Albert gereis het, meegebring. Dit het ook 'n alternatiewe handelsroete aan die bewoners aan beide kante van die Swartberge daargestel.

Op sosiale en ekonomiese vlak was die Swartbergpas ongetwyfeld 'n groot bate vir die inwoners van die Klein- en Groot-Karoo. Dit het grootliks bygedra tot 'n meer effektiewe en gereelde pos- en passasiersdiens vir die gebied.

Die Swartbergpas was die laaste en heel moontlik die indrukwekendste van die bergpasse wat gedurende die 19de eeu deur Thomas Bain gebou is. Die feit dat dit vandag nog in gebruik is, is 'n duidelike getuigskrif van die vermoëns en boumetodes van die 19de eeuse siviele ingenieurs.

Die Swartbergpas het ook 'n belangrike rol gespeel gedurende die 2de helfte van die 19de eeu in die daarstelling van 'n kommunikasienetwerk tussen die Klein- en Groot-Karoo. Dit is egter 'n jammerte dat die gebruik van padvervoer na twee dekades van gebruik van hierdie pas moes plek maak vir spoorvervoer.

Die pas is vandag 'n Nasionale Monument en steeds 'n groot aantrekkingskrag vir toeriste.

APPENDIX 1

Estimate of the probable cost of the Zwartberg Pass
as calculated by T. Bain.¹

1.		
From foot of pass - South - for 3 ³ / ₄ miles	£ 975-0-0	
Easy work @ £300 per mile		
For 1 ¹ / ₂ - strong escarpment. A little	£ 1 800-0-0	
blasting here and there @ £1 200 per mile		£ 7 975-0-0
Further - 1 mile - heavy escarpment.	£ 2 000-0-0	
Blasting + walling @ £2 000 per mile		
Further - 1 mile to summit. Very heavy.	£ 3 200-0-0	
Blasting + walling @ £3 200 per mile		
2.		
North side - for 1 ¹ / ₂ miles escarpment	£ 2 250-0-0	
rubble + rock. Little blasting @ £1 500		
per mile.		
Flat for 1 ¹ / ₂ mile. Easy work @ £300 per	£ 150-0-0	
mile.		
For 2 miles - Rock + rubble. Some	£ 3 600-0-0	
walling @ £1 800 per mile		£14 700-0-0
For 1 mile. Rock escarpment. Heavy	£ 3 000-0-0	
blasting + walling @ £3 000 per mile		
For 1 ¹ / ₂ miles. Rock + rubble. Some	£ 3 000-0-0	
walling + blasting @ £2 000 per mile		
For 1 ¹ / ₂ miles to northern base. Rock	£ 2 700-0-0	
+ rubble. 4 Drifts @ £1 800 per mile		
3.		
Contingencies @ 10% (£ 2 267-0-0)		
		<u>Total</u>
		£24 942-0-0
If constructed by convict labour:		
Total estimated cost	= £ 24 942-0-0	
300 convicts will take 2 years		
to complete. Average value of	£ 16 424-0-0	
convicts @ 1/6- per man for		

1 PWD 1/280 Letters Received, Road and Building Works
Officials: T. Bain - J. Fforde, 24/7/1879.

196

722 days = £ 8 518-0-0

Cost of Barracks - Main Stn - 200 men
plus officers quarters.

£ 1 050-0-0

Outstation for 100 men

£ 400-0-0

2nd Main Stn etc

£ 1 400-0-0

= £ 2 850-0-0

£11 368-0-0

Less value of corrugated iron
to be sold after

£ 950-0-0

£10 418-0-0

APPENDIX 2

Bain's salary and allowances were as follows:

Salary	£ 550
Allowance of maintenance of travelling equipment	175
Allowance for servant	55
Quarters	<u>84</u>
Total	£ 864

The breakdown for the maintenance of travelling equipment was as follows:

Horse hire	£ 75
Cart hire	22
Shoeing	7
Driver	55
Contingencies	<u>16</u>
Total	£ 175 ²

2 PWD 1/591 Letters Despatched, Secretary : J. Fforde - Commissioner of Crown Lands, 26/1/1881, pp. 420 and 516; PWD 1/589 Letters Despatched, Secretary : J. Fforde - Commissioner of Crown Lands, p. 660; PWD 1/590 Letters Despatched, Secretary: J. Fforde - Commissioner, 17/7/1881, pp. 579-582.

APPENDIX 3**Railway Construction in South Africa, 1860 - 1909.³**

Period	Construction under influence of	Mileage opened	Annual Average	Total mileage at end of period
1860-63	Agric interests	63	10	63
1875-85	Diamond mining	1 713	156	1 776
1886-95	Gold mining	1 462	146	3 238
1896-1909	Agric & industrial interests of branch extensions	3 656	261	6 894

³ C.G.W. Schumann : *Structural Changes and Business Cycles in South Africa, 1806-1936*, p. 53.

APPENDIX 4**(A) A Guide to the Roads and Mountain Passes Built and Supervised by Thomas Bain.⁴**

1. **Victoria Road** - between Camps Bay and Hout Bay
2. **Lady Grey Bridge** - over the Berg River at Paarl
3. **Railway Line and Road** - between Wellington and Tulbagh
4. **Oudenkloof Road** (Roodezands) - North-west of Tulbagh
5. **Grey's Pass** (Piekenier's Kloof) - between Piketberg & Citrusdal.
6. **Pakhuis Pass** - between Clanwilliam and Doringbos
7. **Van Rhy'n's Pass** - between Vanrhynsdorp and Calvinia
8. **Verlaaten Kloof** - between Matjesfontein and Sutherland
9. **Cogman's Kloof** - between Ashton and Montagu
10. **Koo Pass** (Burger's Pass) - between Montagu and Matroosberg
11. **Tradouw Pass** - between Swellendam and Barrydale
12. **Garcia's Pass** - between Riversdale and Ladismith
13. **Robinson Pass** - between Mossel Bay and Oudtshoorn
14. **Zwartberg Pass** - between Oudtshoorn and Prince Albert
15. **Schoeman's Poort Road** - between Oudtshoorn and Zwartberg Pass
16. **Meiring's Poort** - between De Rust and Beaufort West
17. **Old Passes Road** - between Knysna and George

Inc. (a) **Phantom Pass**
 (b) **Homtini Pass**
 (c) **Treka-Da-Touw** etc.

18. **Uniondale Road** - between Avontuur and Uniondale
19. **Prince Alfred's Pass** - between Knysna and the Long Kloof
20. **Tzitzikama Road** - between Knysna and Humansdorp

4 Jagger Manuscripts Library, U.C.T. : BC 812 Ci; The list is perhaps a little deceiving, for Thomas Bain was only partly involved on some of these passes, e.g. Meiring's Poort, Baviaanskloof and Schoeman's Poort.

Inc. (a) Groot River Pass
(b) Bloukrans Pass
(c) Storms River Pass

21. **Baviaanskloof** - running between the Coega and Baviaanskloof Mountains
22. **Klein Zwartberg Pass** - between Ladismith and Laingsburg
23. **Molteno Pass** - between Beaufort West and Loxton
24. **De Jager's Pass** - between Beaufort West and Sneekraal

(B) A Guide to A.G. Bain's Roads and Passes.⁵

1. **Bain's Kloof** - between Wellington and Worcester (inc. tunnel)
2. **Michell's Pass** - at Mostert's Hoek, just south of Ceres
3. **Gydo Pass** - between Prince Alfred Hamlet and Citrusdal
4. **Oudeberg Pass** - North-west of Graaff Reinet
5. **Van Ryneveld Pass** - North of Graaff Reinet
6. **Ecca Pass** - and the Queen's Road, between Grahamstown and Fort Beaufort
7. **Road, Pluto's Vale to Breakfast Vlei**
8. **Katberg Pass** (almost completed) - between Fort Beaufort and Whittlesea.

5 Jagger Manuscripts Library, U.C.T. : BC 812 Ci.

APPENDIX 5**Bibliography - Thomas Bain⁶**

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6 Jagger Manuscripts Library, U.C.T. : BC 812.

.....(1889 - 93). Reports of the Geological and
Irrigation Surveyor of the Cape Colony. *Cape
Parliamentary reports G45 1889; G45 1890;
G16 1891; G32 1892; G28 1893.* Cape Town.

APPENDIX 6**Number of Insolvencies in Oudtshoorn and Cape Colony⁷**

	Oudtshoorn		Cape Colony
	Number	% of Colony	Number
1881	12	3,5	342
1882	34	3,7	910
1883	33	3.3	1000
1884	30	3,9	770
1885	67	9,9	674
1886	21	2,9	714
1887	10	2,2	444
1888	15	4,9	304
1889	5	4,2	115

7 A. Appel : Die distrik Oudtshoorn, p. 199 (compiled by A. Appel from Blue Books 1881-1883, and the Statistical Register 1886-1889).

APPENDIX 7**Convict Labour Return Monthly Average⁸**

1883	Aug 31	117	1885	Jan 31	241		May	363
	Sept 30	129		Feb 28	259		June	342
	Oct 31	166		March 31	304		July	321
	Nov 30	221		April 30	319		Aug	295
	Dec 31	<u>220</u>		May 31	330		Sept	286
1884	Jan 31	233		June 30	327		Oct	284
	Feb 29	235		July 31	327		Nov	333
	March 31	228		Aug 31	326		Dec	<u>365</u>
	April 30	244		Sept 30	364	1887	Jan	369
	May 31	258		Oct 31	433		Feb	447
	June 30	245		Nov 30	418		March	414
	July 31	229		Dec 31	<u>398</u>		April	385
	Aug 31	217	1886	Jan	380		May	317
	Sept 30	231		Feb	328		June	<u>310</u>
	Oct 31	226		March	347			
	Nov 30	238		April	355			
	Dec 31	<u>232</u>						

8 PWD 2/5/365 Prince Albert Zwartberg Pass Works : Convict Labour Returns.

APPENDIX 8

Rational Formula

By definition the rational formula reads that if rainfall of uniform intensity occurs over the entire watershed and continues until all parts of the watershed are contributing to the discharge at the outlet, then the rate of discharge per unit area will be equal to the rate of rainfall minus the rate of loss due to infiltration and evaporation, i.e.

$$Q = C i A, \text{ where}$$

Q is the rate of maximum discharge in cubic feet per second,

i is the rate of rainfall in inches per hour,

A is the area in acres, and

C is the co-efficient of run-off.

An alternative approach to this is the Mac math formula. This formula amends the rational formula to take account of the slope of the ground of the area of watershed and is expressed as

$$Q = A c i^s \text{ where 's' is the average slope in ft } 1000^{-1}.$$

Two assumptions are fundamental to these methods:

- (a) that rainfall is uniform over the whole area and
- (b) that rainfall intensity is uniform throughout the time period required to produce maximum concentration of flow.'

APPENDIX 9**Fees Payable at Zwartberg Toll**¹⁰

	s.	d.
On every wheel of every four-wheeled vehicle not provided with a brake ..	1	0
On every wheel of every four-wheeled vehicle provided with a brake ..	0	4
On each wheel of every two-wheeled vehicle ..	0	3
On every animal drawing any vehicle ..	0	1
On every animal, save those below specified, not drawing any vehicle ..	0	1
For every twelve sheep, goats or pigs ..	0	1
For every sheep, goat or pig, under twelve ..	0	0¼
For every ostrich ..	0	1
For every horse under saddle ..	0	3

10 PWD 2/5/365 Prince Albert Zwartberg Pass Toll :
Proclamation No. 82 of 1888.

APPENDIX 10Parcel ExpensesExpenses via Mossel Bay vs Probable expenses via the Zwartberg

			<u>Pass</u>
Bills of lading and		Parcel per rail	5/9
wagon hire	3/6		
Freight	10/6	Agency at Prince Albert	1/3
		Road Station	<u>2/6</u>
Carriage to Oudtshoorn	<u>1/3</u>	Carriage to Oudtshoorn	9/6 ¹¹
Total	19/8		

11 Oudtshoorn Courant, 29/4/1886.

APPENDIX 11Parcel Expenses

<u>Via Mossel Bay</u>	<u>£.</u>	<u>s.</u>	<u>d.</u>
Bills of lading and cartage to docks	0	5	6
Freight for 1/2 ton or 1000 lbs	0	10	6
Landing and forwarding, including wharfage at Mossel Bay on a value of 30	0	9	0
Carriage to Oudtshoorn @ 1s. 6d. per 100 lbs	0	15	0
Agency	0	2	6
Total	2	2	6

<u>Via Prince Albert Road Station and Zwartberg Pass</u>			
Wagon or cart to railway station	0	1	6
1000 lbs @ 5s. 6d. per 100 lbs to Prince Albert Road Station	2	15	0
Carriage to Oudtshoorn at 2s. 6d. per 100 lbs	1	5	0
Agency	0	4	6
Total	4	6	0 ¹²

APPENDIX 12

A. Return showing the Number of Four-wheeled Vehicles that have passed through the Toll Gate on the Meiring's Poort Road during the Month of November, 1880.

	No. of Vehicles.	Where from.	Proposed Destination when passing here.	Remarks.
	13	Oudtshoorn	Beaufort	N.B. When the name of any Town or Village is mentioned, it includes the district also.
	6	Ditto	Graaff-Reinet	
	3	Ditto	Burghersdorp	
Wagons	2	Mossel Bay	Beaufort	
going	1	Oudtshoorn	Willowmore	
Northwards	2	George	Prince Albert	Note: 30 Vehicles from Oudtshoorn. 13 to Beaufort.
	6	Oudtshoorn	Prince Albert	
	<u>1</u>	Ditto	Queen's Town	
Total	34			

The Number of Four-wheeled Vehicles that have passed the Bar going Southwards.

	wagons			
	9	Prince Albert	Oudtshoorn	Total number of wagons both ways during this month of November, 1880 = 65.
	11	Beaufort	Ditto	
	2	Aberdeen	Ditto	
Wagons	2	Victoria West	Ditto	
going	2	Fraserburg	George Town	
Southwards	<u>1</u>	Prieska	Mossel Bay	Note: 24 Vehicles to Oudtshoorn, 11 from Beaufort.
Total	31			

B. Return showing the Number of Two-wheeled Vehicles passing the Toll Gate in the Meiring's Poort during the Month of November, 1880.

	No. of Vehicles.	Where from.	Proposed Destination when passing here.	Remarks.
	cars			
	14	Oudtshoorn	Prince Albert	Note: 14/26
	2	Ditto	Aberdeen	from Oudt-
Carts	1	Port Elizabeth	Prince Albert	shoorn to
going	3	George	Ditto	Prince Albert
Northwards	1	Oudtshoorn	Colesberg	
	<u>5</u>	George Town	Beaufort	
Total	26			

The Number of Two-wheeled Vehicles that have passed the Bar going Southwards.

	cars			
	10	Prince Albert	Oudtshoorn	The total
Carts	5	Beaufort	Ditto	number of carts
going	4	Caledon	Burghersdorp	that have
Southwards	4	Beaufort	George Town	passed both
	<u>4</u>	Prince Albert	George Town	ways during
Total	27			this month=53.

C. Return showing the Number of Four-wheeled Vehicles that have passed through the Toll-Bar on the Meiring's Poort Road during the Month of December, 1880.

	No. of Vehicles	Where from.	Proposed Destination when passing here.	Remarks.
	13	Oudtshoorn	Beaufort	N.B. When the
	7	Ditto	Aberdeen	name of any
	5	Ditto	Graaff-Reinet	Town or Village
	3	George	Prince Albert	is mentioned
Wagons	4	Ditto	Victoria	it includes the
going	2	Ditto	Beaufort	district also.
Northwards	7	Mossel Bay	Ditto	33/53 from
	4	Oudtshoorn	Burghersdorp	Oudtshoorn
	4	Mossel Bay	Prince Albert	
	2	Oudtshoorn	Victoria	
	2	Ditto	Bedford	
Total	53			

The Number of Four-wheeled Vehicles that have passed the Bar going Southwards.

	5	Prince Albert	Oudtshoorn	
	2	Ditto	George	35/43 to
	20	Beaufort	Oudtshoorn	Oudtshoorn
Wagons	4	Graaff-Reinet	Ditto	
going	3	Beaufort	Mossel Bay	5/43 to George
Southwards	3	Ditto	George	
	3	Aberdeen	Oudtshoorn	
	2	Victoria	Ditto	
	1	Prieska	Ditto	
Total	43			

D. Return shown the Number of Two-wheeled Vehicles that have passed through the Toll-Bar on the Meiring's Poort Road during the Month of December, 1880.

	No. of Vehicles	Where from.	Proposed Destination when passing here.	Remarks
	carts			
	10	Oudtshoorn	Prince Albert	
	3	George	Beaufort	
	1	Uniondale	Prince Albert	10/24 from
Carts	5	George	Ditto	Oudtshoorn to
going	2	Oudtshoorn	Beaufort	Prince Albert
Northwards	2	Ditto	Willowmore	
	<u>1</u>	Mossel Bay	Beaufort West	
Total	24			

The Number of Two-wheeled Vehicles that passed going Southwards.

	14	Prince Albert	Oudtshoorn	
	4	Beaufort	Ditto	
	1	George		96 Wagons
Carts	3	Prince Albert	George	during this
going	3	Beaufort	Mossel Bay	month, 57 Carts
Southwards	1	Willowmore	Oudtshoorn	ditto.
	4	Aberdeen	Ditto	
	<u>3</u>	Graaff-Reinet	Ditto	
Total	33			

E. Return showing the Number of Four-wheeled Vehicles that have passed through the Toll-Bar on the Meiring's Poort Road during the Month of January, 1881.

	No. of	Where from.	Proposed Destination when passing here.	Remarks.
	wagons			
	12	Oudtshoorn	Beaufort	N.B. When the
	9	Ditto	Prince Albert	name of any
Wagons	2	George	Ditto	Town or Village
going	7	Mossel Bay	Beaufort	is mentioned
Northwards	3	Oudtshoorn	Graaff-Reinet	it includes the
	<u>4</u>	Ditto	Aberdeen	the district
Total	38			also.

The number of Four-wheeled Vehicles that have passed the Toll-Bar going Southwards.

	wagons		
	11	Prince Albert	Oudtshoorn
	3	Ditto	Mossel Bay
	3	Ditto	George
Wagons	11	Beaufort	Oudtshoorn
going	3	Prince Albert	Ditto
Southwards	5	Graaff-Reinet	Ditto
	3	Aberdeen	Ditto
	<u>3</u>	Willowmore	Ditto
Total	42		

F. Return showing the Number of Two-wheeled Vehicles that have passed the Toll-Bar during the Month of January, 1881.

	No. of Vehicles.	Where from.	Proposed Destination when passing here.	Remarks.
	carts			
	2	Prince Albert	George	
	11	Beaufort	Oudtshoorn	
Number of	2	Ditto	George	
carts going	5	Ditto	Mossel Bay	
Southwards	9	Prince Albert	Oudtshoorn	
	<u>6</u>	Graaff-Reinet	Ditto	
Total	35			

Return showing Number of Two-wheeled Vehicles going Northwards.

	carts			
	15	Oudtshoorn	Prince Albert	80 Wagons
	3	Mossel Bay	Ditto	during this
Number of	4	George	Ditto	month, 71
Carts going	7	Oudtshoorn	Beaufort	Carts ditto.
Northwards	3	George	Ditto	
	<u>4</u>	Oudtshoorn	Willowmore	
Total	36 ¹³			

13 A. 8-'81 Select Committee Report on the Beaufort West Road Contribution, May 1881, pp. vii-xii.

APPENDIX 13

Plans and drawings of the Zwartberg pass and various ruins

Fig 1 : Plan of Northern Ascent

Fig 2 : Hairpin Bend on "The Wall"

Fig 3 : Plan of Hairpin Bend

Fig 4 : Plan of Northern Ascent near Summit

Fig 5 : Plan of Southern Ascent from "Boegoekloof"

Fig 6 : Plan of ruins at "Eerstewater"

Fig 7 : Plan of "Blikstasie" ruins

Fig 8 : Floor Plan of old Toll ruins

Fig 9 : Plan of "Hotelletjie" ruins

Fig 10: Plan of "Stalletjie" ruins

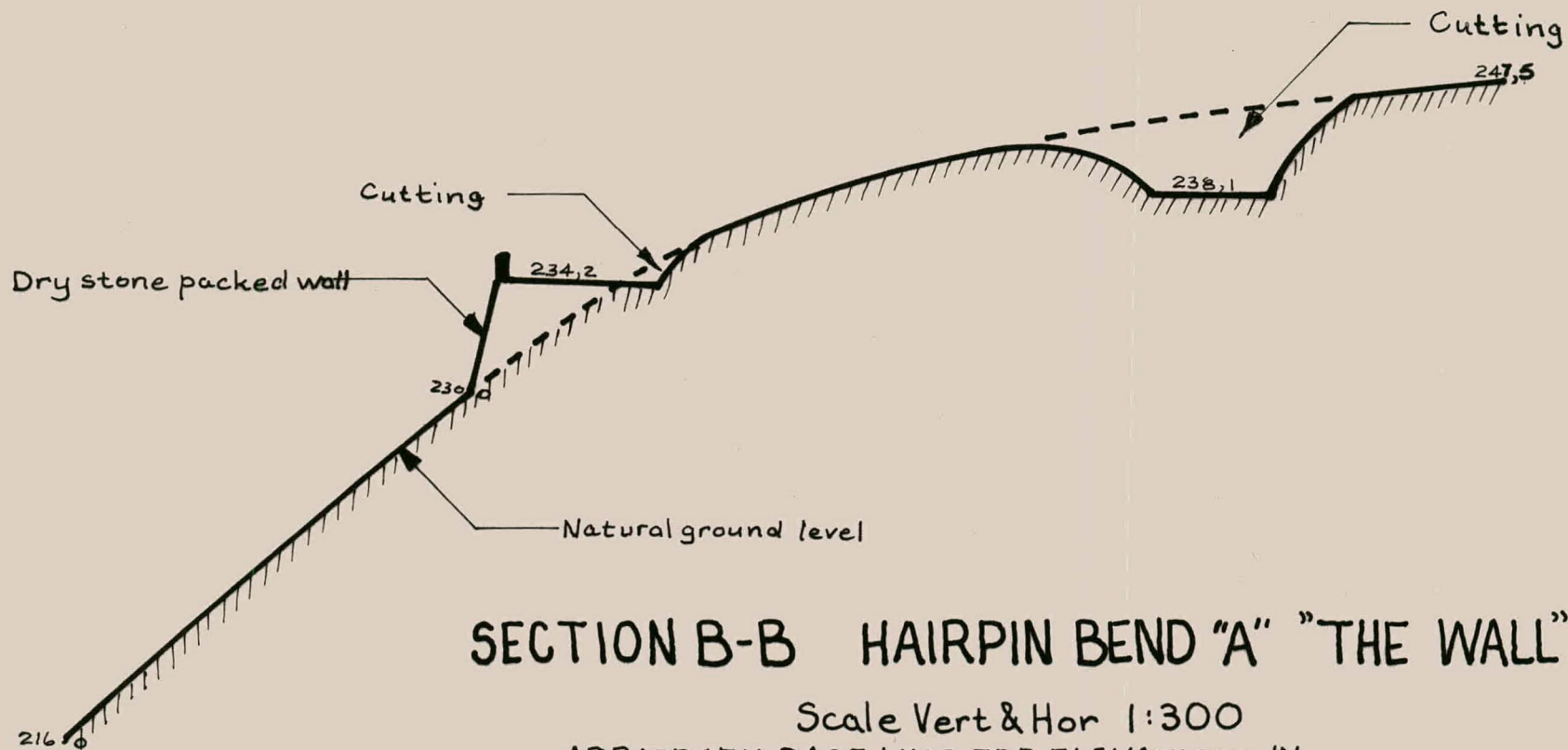
Fig 11: Comparison of surveys.



April 1992

Surveyed & Drawn:

W. D. Raper



SECTION B-B HAIRPIN BEND "A" "THE WALL"

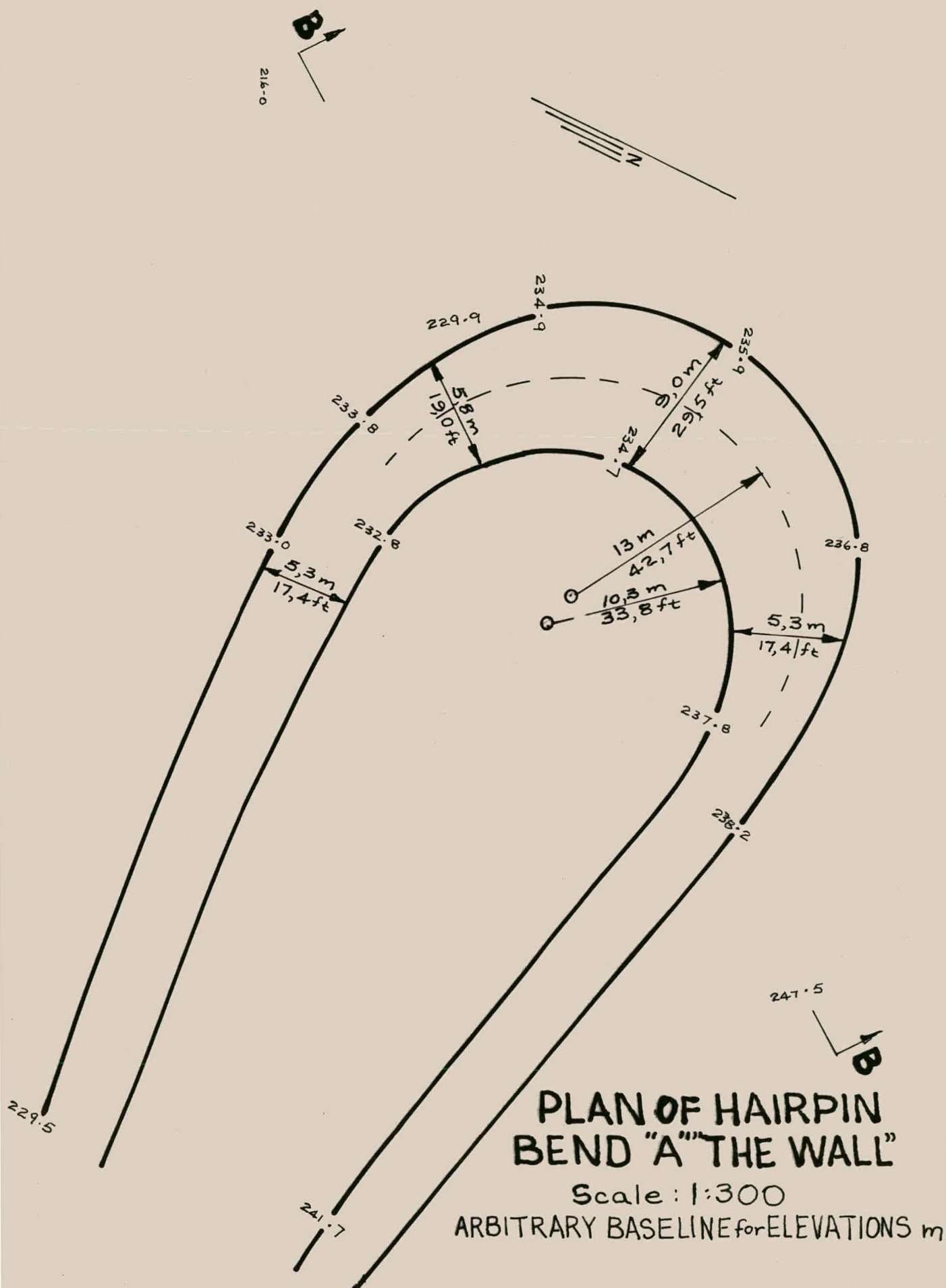
Scale Vert & Hor 1:300

ARBITRARY BASE LINE FOR ELEVATIONS IN m

April 1992

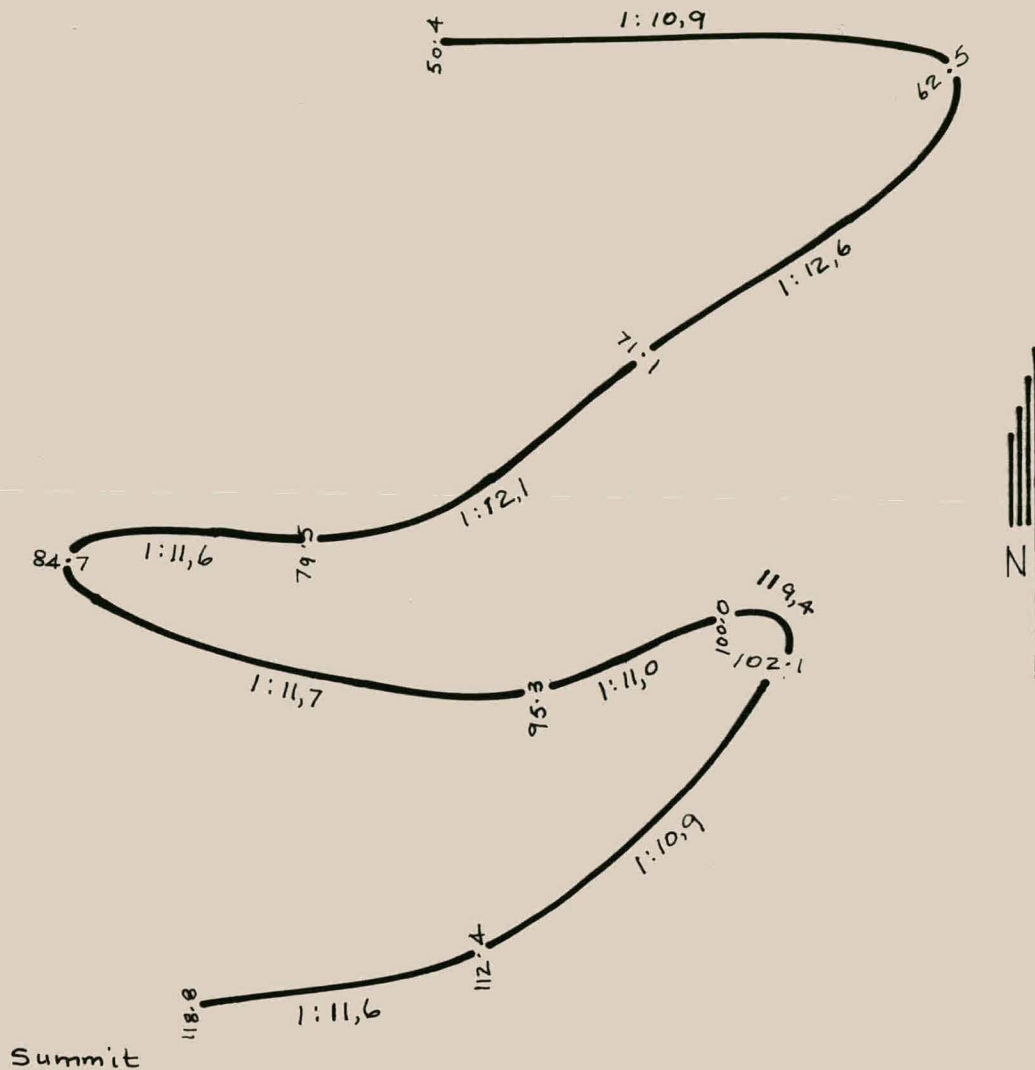
Surveyed & Drawn:

Mr. R. van der Merwe



April 1992 Surveyed & Drawn:

M. D. van der Merwe

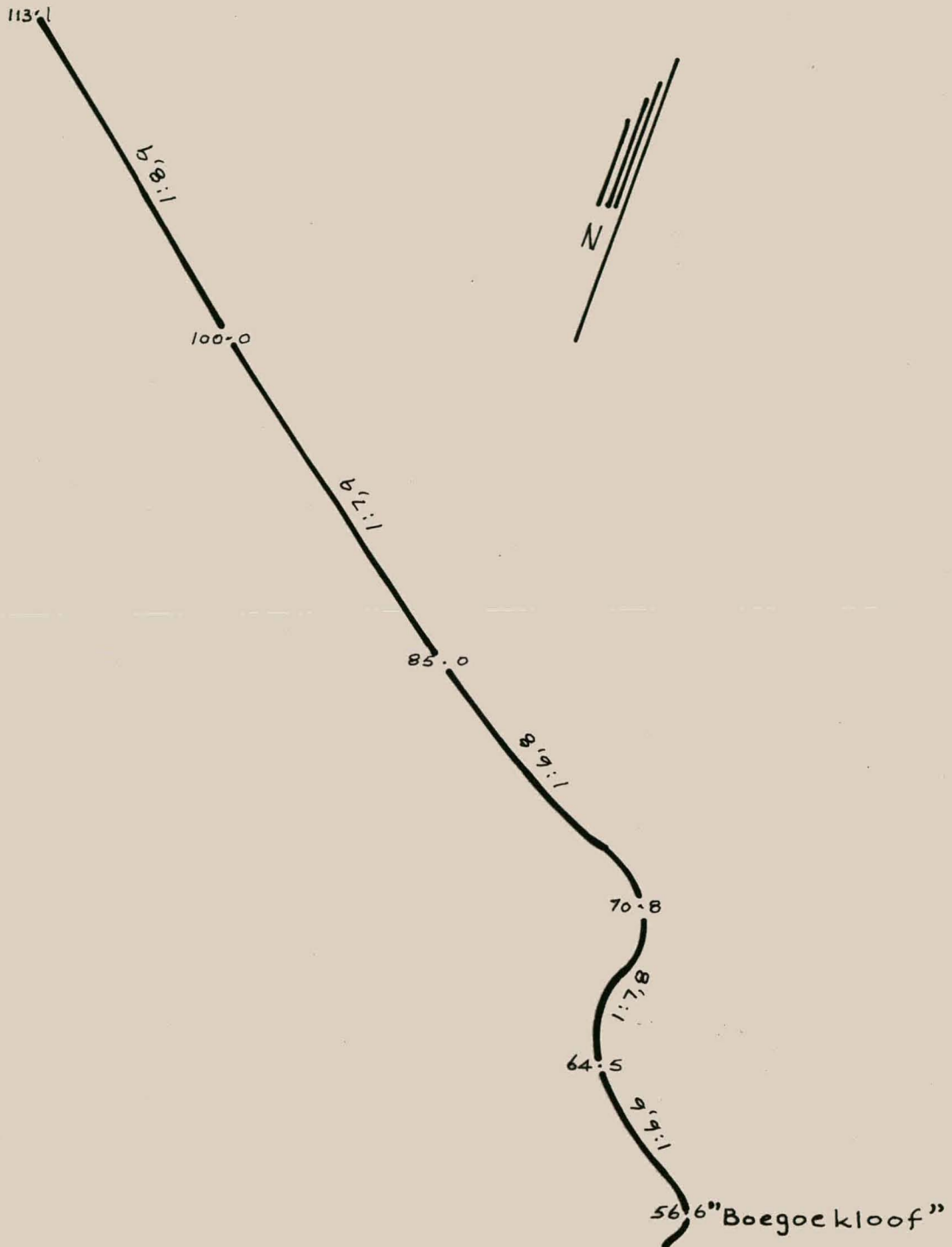


PLAN OF NORTHERN ASCENT TO SUMMIT OF SWARTBERG MOUNTAIN

Scale 1:2000

ARBITRARY BASE LINE FOR ELEVATIONS IN m

Gradients Vert:Hor



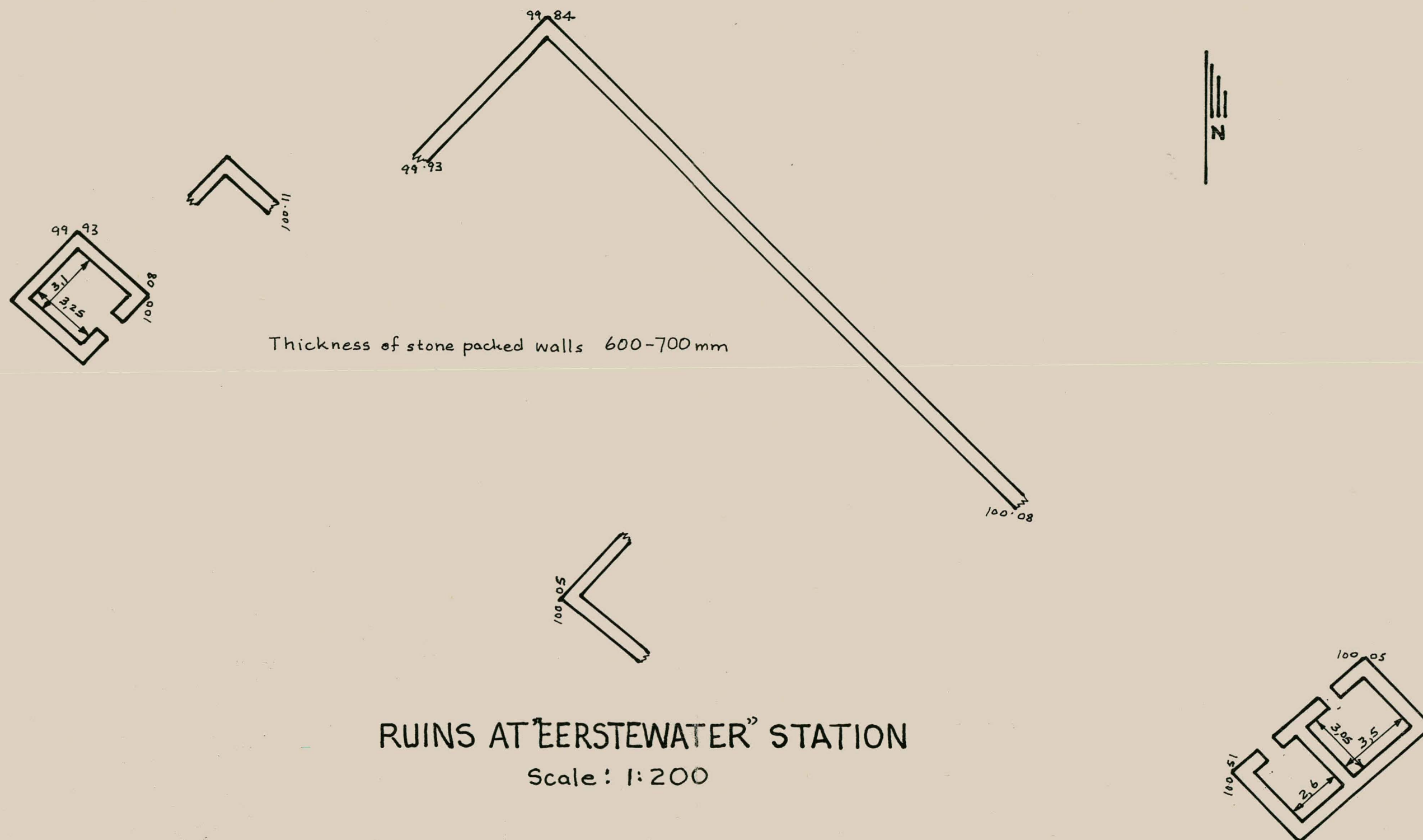
PLAN TO SOUTHERN ASCENT OF SWARTBERG MOUNTAIN FROM "BOEGOEKLOOF"

Scale 1:2 000

ARBITRARY BASE LINE FOR ELEVATIONS IN m

April 1992 Surveyed & Drawn:

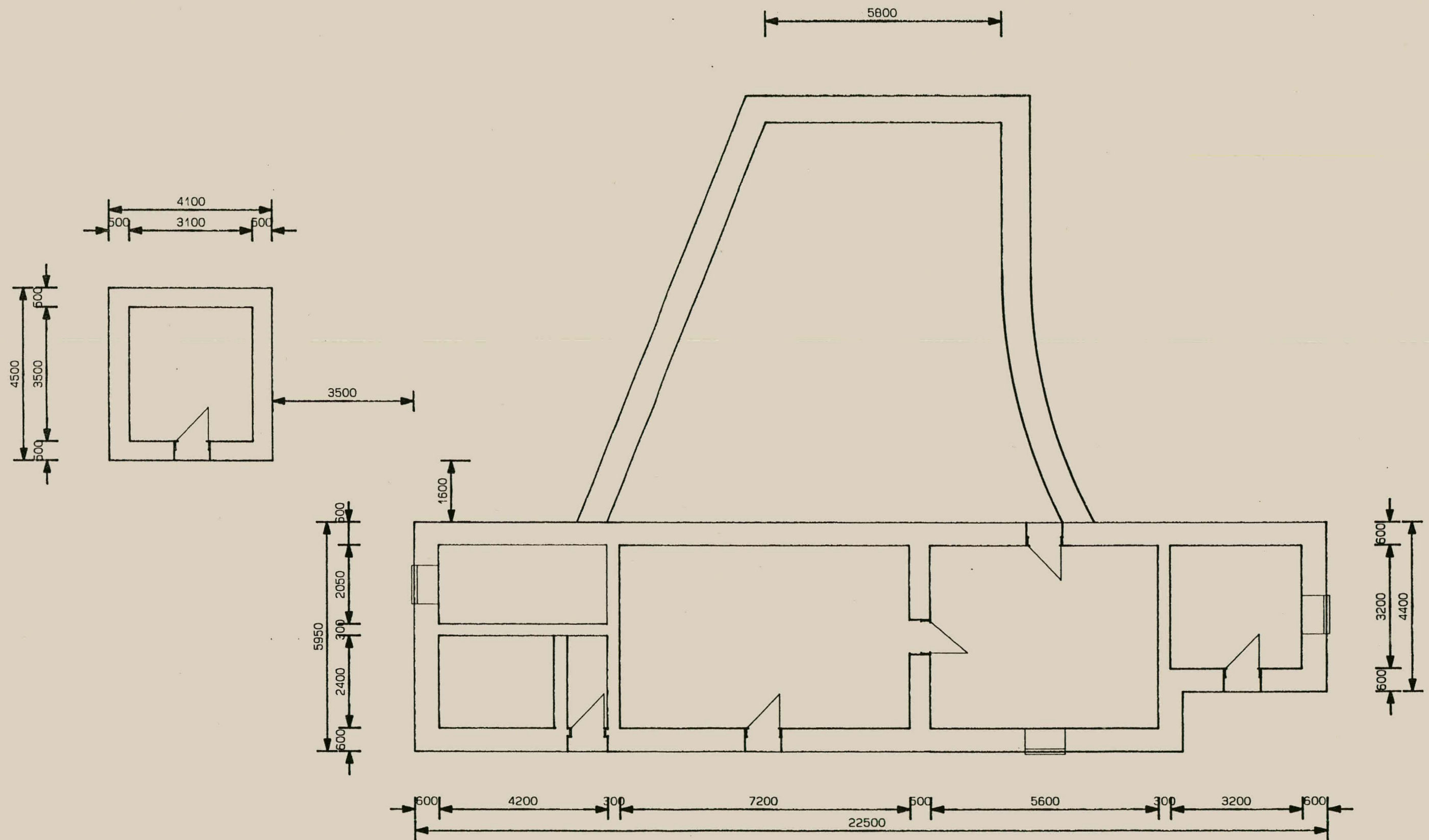
M. D. R. Mafurak



April 1992

Surveyed & Drawn:

[Signature]

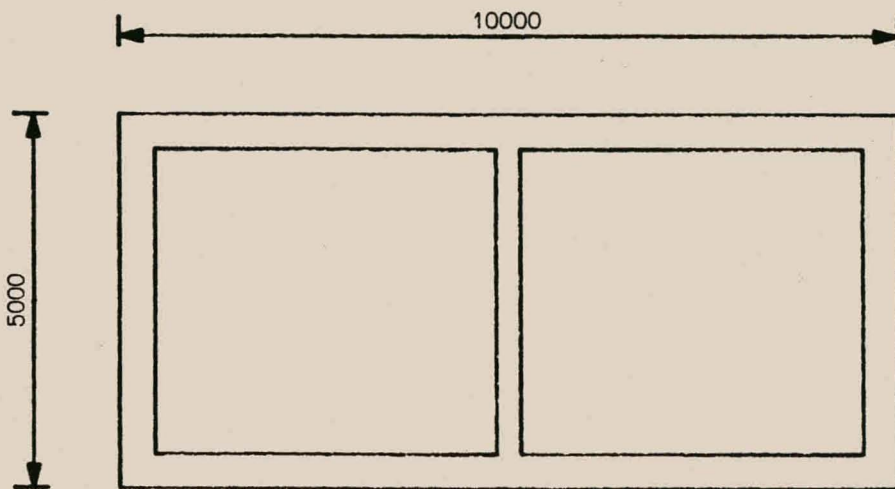


PLAN OF 'BLIKSTASIE' GAOL

SCALE 1:100

MEASUREMENTS TAKEN APRIL 1992

DRAWN: S.R.MAYBERY



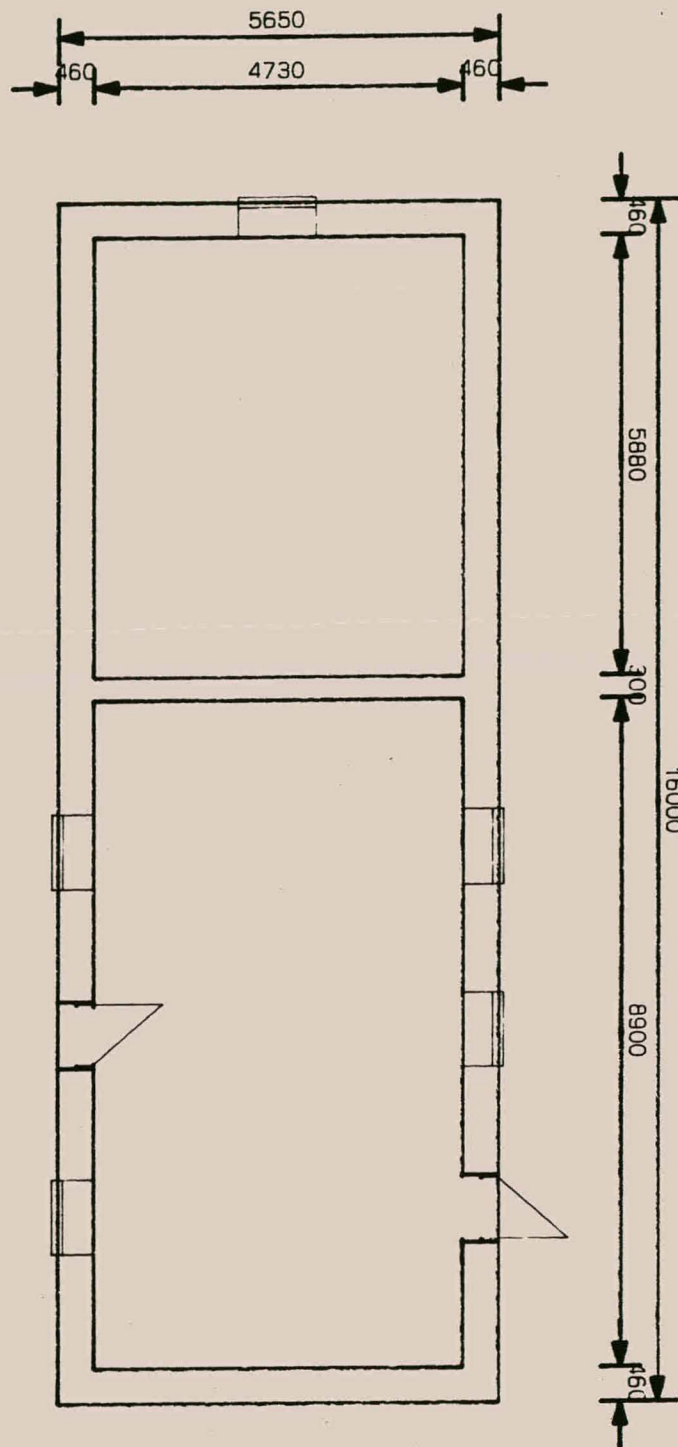
FLOOR PLAN OF TOLL GATE BUILDING

(ONLY THE FLOOR EXISTS)

SCALE 1:100

MEASUREMENTS TAKEN APRIL 1992

DRAWN: S.R. MAYBERY

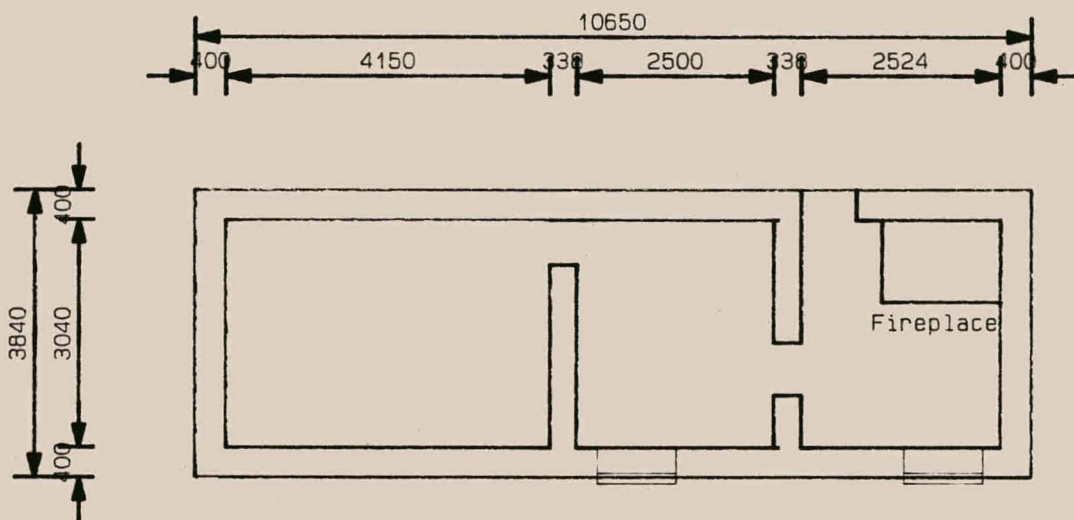


PLAN OF "HOTELLETJIE"

SCALE 1:100

MEASUREMENTS TAKEN APRIL 1992

DRAWN: S.R.MAYBERY



PLAN OF "STALLETJIE"

SCALE 1:100

MEASUREMENTS TAKEN APRIL 1992

DRAWN: S.R.MAYBERY

COMMENTS ON APPENDIX 13 (FIG 11)
(Sketch in Jacket attached to back cover)

A comparison of three surveys done of the Zwartberg Pass reveals a number of interesting points:

Thomas Bain first surveyed a route over the Zwartberg Mountain Range in July 1879 from which he drew his "Plan and Section" (CAD, M3/533). Once the go-ahead had been given for the pass to be built and John Tassie had been awarded the contract, Thomas Bain again surveyed the pass (CAD, PWD 1/293: Zwartberg Mountain Pass, Memo of Measurements taken) in December 1881. It is interesting to note the differences between the two surveys. The profile of the second survey superimposed on the first reveals that a different route was chosen (see miles one to four and five to eight for the northern side of the pass). The southern descent reveals no marked difference. In Bain's "Memo of Measurements" it appears that elevations were not measured, but only the slopes from point to point. This data was used to plot a comparison to his first survey and it appears that a different route was taken for the above-mentioned sections.

It should be pointed out that in the "Memo of Measurements" no slope is given from Chainage zero to eighty-four, but as this section is obviously not level a slope of 1 : 35 (as was indicated on his first diagram (Plan and Section), and appears to be reasonable from the survey done in 1970) was assumed.

Of further comparative interest is the survey completed by the Cape Provincial Administration in 1970. This survey superimposed

upon the other two reveals that the first section on the northern side completed by John Tassie, and later the section on the southern side completed by convict labour (from miles nine-and-a-half to fourteen) is different from both the "Plan and Section" drawn by Thomas Bain in 1879: and from his "Memo of Measurements" surveyed in 1881. As we may conclude that the actual pass has not been significantly altered since it was built we may further conclude, either, that the plans were not meticulously followed and/or that they were only a guideline for the actual building of the pass. The gradients of 1 : 6 and 1 : 7 on the northern side reveal that the instruction of the Chief Inspector of Public Works that gradients were not to be less than 1 : 8 was not adhered to. In addition, his correction of the gradient from 1 : 8 to 1 : 10 on Bain's Plan of 1879 from miles eight to past nine miles, was not followed.

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Annual Reports of the Central Board of Commissioners for Public Roads in the Cape Colony. Cape Town, 1854.

Annual Report of the Central Board of Commissioners of Public roads for the year 1853. Cape Town, 1855.

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G. 22-'57 *Annual Report of the Central Board of Commissioners of Public Roads for the year 1856*. Cape Town, 1857.

- G. 18-'58 *Report of the Central Board of Commissioners for the year 1857. Cape Town, 1858.*
- G. 57-'59 *Report of the operations of the late Central Board of Commissioners for Public Roads for the year 1858. Cape Town, 1859.*
- G. 21-'61 *Report of the Chief Commissioner of Roads for the year 1860. Cape Town, 1861.*
- G. 34-'63 *Report of the Chief Commissioner of Roads for the year 1862. Cape Town, 1863.*
- G. 85-'82 *Statement of Revenue and Expenditure of Divisional Councils in this Colony for the year 1880. Cape Town, 1882.*
- G. 102-'83 *Statement of Revenue and Expenditure of Divisional Councils in this Colony for the year 1881. Cape Town, 1883.*
- G. 53-'84 *Statement of Revenue and Expenditure of Divisional Councils in this Colony for the year 1882. Cape Town, 1884.*
- G. 52-'85 *Statement of Revenue and Expenditure of Divisional Councils in this Colony for the half year ended 30th June 1883. Cape Town, 1885.*
- G. 33-'86 *Statement of Revenue and Expenditure of Divisional Councils in this Colony for the year ended 30th June 1885. Cape Town, 1886.*
- G. 40-'87 *Statement of Revenue and Expenditure of Divisional Councils for the year ended 30th June 1886. Cape Town, 1887.*

- G. 59-'88 *Statement of Revenue and Expenditure of Divisional Councils for the year ended 30th June 1887. Cape Town, 1888.*
- G. 54-'90 *Statement of the Revenue and Expenditure of Divisional Councils for the year ended 30th June 1889, and Supplementary Statement for 1888. Cape Town, 1890.*
- G. 49-'91 *Statement of the Revenue and Expenditure of Divisional Councils for the year ended 30th June 1890, and Supplementary Statement for 1889. Cape Town, 1891.*
- G. 54-'92 *Statement of the Revenue and Expenditure of Divisional Councils for the year ended 30th June 1891. Cape Town, 1892.*
- G. 55-'93 *Statement of the Revenue and Expenditure of Divisional Councils for the year ended 30th June 1892. Cape Town, 1893.*
- G. 44-'94 *Statement of the Revenue and Expenditure of Divisional Councils for the year ended 30th June 1893. Cape Town, 1894.*
- G. 45-'95 *Statement of the Revenue and Expenditure of Divisional Councils for the year ended 30th June 1894. Cape Town, 1895.*
- G. 58-'96 *Statement of the Revenue and Expenditure of Divisional Councils for the year ended 30th June 1895. Cape Town, 1896.*
- G. 56-'97 *Statement of the Revenue and Expenditure of Divisional Councils for the year ended 30th June 1896. Cape Town, 1897.*

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- G. 11-'82 *Annual Report of Chief Inspector of Public Works for the year 1881. Cape Town, 1882.*
- G. 52-'83 *Report of the Chief Inspector of Public Works for the year 1882. Cape Town, 1883.*
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- G. 21-'86 *Report of the Chief Inspector of Public Works for the year 1885. Cape Town, 1886.*
- G. 25-'88 *Report of the Chief Inspector of Public Works for the year 1887. Cape Town, 1888.*
- HA. 4-'56 *Petition of the inhabitants of the Village of Victoria and District of Beaufort. Cape town, 1856.*
- A. 30-'59 *Petition of certain inhabitants and landed proprietors of the Division of Prince Albert. Cape Town, 1859.*
- A. 75-'59 *Petition of certain landed proprietors and others of the Division of Oudtshoorn. Cape Town, 1859.*
- A. 15-'65 *Petition of the Misses Bain. Cape Town, 1865.*

- A. 40-'65 *Construction of the road through the Seven Weeks' Poort. Cape Town, 1865.*

- A. 81-'65 *Petition of certain inhabitants of Oudtshoorn. Cape Town, 1865.*

- A. 98-'65 *Petition of the Divisional Council of George. Cape Town, 1865.*

- A. 102-'65 *Copies of Correspondence with Post-Contractor Le Roux, relative to the bad state of the road through Meiring's Pass. Cape Town, 1865.*

- A. 108-'65 *Memorial of certain landowners and others in the Division of Oudtshoorn. Cape Town, 1865.*

- G. 15-'78 *Report of the Commissioners for Improving the port and harbour of Mossel Bay for the year 1877. Cape Town, 1878.*

- A. 26-'79 *Petition of the Divisional Council of Oudtshoorn. Cape Town, 1879.*

- A. 39-'79 *Petition of the inhabitants of the village of Prince Albert. Cape Town, 1879.*

- A. 56-'79 *Petition of inhabitants of the Division of Oudtshoorn. Cape Town, 1879.*

- A. 60-'79 *Petition of the chairman and members of the Chamber of Commerce of Mossel Bay. Cape Town, 1879.*

- A. 25-'80 *Petition of the landowners, merchants, and other residents of Mossel Bay. Cape Town, 1880.*

- A. 36-'80 *Petition of the landowners, inhabitants, and others in the town and District of Willowmore.*

Cape Town, 1880.

- A. 39-'80 *Memorial of the landowners and others of Doorn River, in the District of George. Cape Town, 1880.*
- A. 63-'80 *Petition of inhabitants of Oudtshoorn. Cape Town, 1880.*
- A. 66-'81 *Memorial of the undersigned inhabitants of George and Oudtshoorn. Cape Town, 1881.*
- A. 76-'81 *Petition of Members of the Divisional council and inhabitants of Fraserburg. Cape Town, 1881.*
- A. 90-'81 *Memorial of the landed proprietors of the District of George and Oudtshoorn. Cape Town, 1881.*
- A. 32-'82 *Petition of the inhabitants of the districts of Mossel Bay, George, and Oudtshoorn. Cape Town, 1882.*
- A. 43-'83 *Petition of Daniel Gabriel de Villiers, William Rowland Thompson, and Hendrik Johannes de Jager, members of the Divisional Council of Beaufort West, in their capacity as such, and as a Committee appointed for that purpose by the said Divisional Council. Cape Town, 1883.*
- A. 60-'83 *Petition of landholders and others, inhabitants of the District of Knysna. Cape Town, 1883.*
- A. 2-'86 *Petition of the Divisional Council, Beaufort West. Cape Town, 1886.*
- A. 5-'89 *Petition of the residents of the field-cornetcies of Great Winterhoek West, in the Division of*

Uitenhage; Henley and Voor Baviaan's kloof, in the Division of Willowmore; Zwart Ruggens and Jansenville, in the Division of Jansenville; and Humansdorp, Hankey, Zitzikama and Zuuranys, in the Division of Humansdorp. Cape Town, 1889.

A. 5-'93 *Petition from inhabitants of Humansdorp and Willowmore. Cape Town, 1893.*

A. 15-'94 *Petition of Landowners and Residents in the town and District of Mossel Bay. Cape Town, 1894.*

A. 16-'91 *Width of Roads. Cape Town, 1891.*

G. 21-'61 *Amount received at toll-bars throughout the Colony between 1843 and 1859. Cape Town, 1861.*

A. 73-'65 *Return showing the various tolls established in the Eastern and Western provinces of the Colony, etc.. Cape Town, 1865.*

Report of a Select Committee appointed by the house of Assembly to consider the subject of the opening of Meiring's Poort. Cape Town, 1856.

Report of the Select Committee appointed to investigate the evidence taken by order of Government, on the complaints of certain labourers lately employed at Meiring's Poort. Cape Town, 1857.

A. 23-'79 *Report of the Select Committee appointed to consider and report on the Oudtshoorn Road Contribution. Cape Town, 1879.*

A. 22-'80 *Report of the Select Committee appointed to consider and report on Beaufort West Road Contribution. Cape Town, 1880.*

- A. 8-'81 *Report of the Select Committee appointed to consider and report on Beaufort West Road Contribution. Cape Town, 1881.*

- A. 11-'81 *Report of the Select Committee appointed to consider and report on the Prince Albert Loan Bill. Cape Town, 1881.*

- A. 15-'86 *Report of the Select Committee on the maintenance of Meiring's Poort. Cape Town, 1886.*

- A. 13-'87 *Report of the Select Committee on the Zwartberg Pass Road. Cape Town, 1887.*

- A. 5-'92 *Report of the Select Committee on the petition of the daughters of the late Mr A.G. Bain. Cape Town, 1892.*

- G. 48-'91 *Census of the Cape of Good Hope, 1891. Cape Town, 1891.*

- G. 33-'84 *Report of the Hydraulic Engineer for the year 1883. Cape Town, 1884.*

- G. 14-'66 *Report of the Chief Inspector of Roads, Bridges, and Buildings for the year 1865. Cape Town, 1866.*

- A. 44-'79 *Return in compliance with a resolution of the Honourable the Legislative Council, dated 22nd July, 1879. Cape Town, 1879.*

- G. 91-'83 *Reports by Civil Commissioners and Resident Magistrates and District Surgeons for the year ended 31st December, 1882. Cape Town, 1883.*

- A. 10-85 *Report by Inspector T. Bain, P.W.D., upon the destruction of Meiring's Poort, and the best means of opening a pass across the Zwartbergen.*

Cape Town, 1885.

- A. 2-'90 *Report and estimate by Mr Robert Bromley, dated 9th July, 1889, for the construction of a road through Meiring's Poort. Cape Town, 1890.*
- WP H.-'62 *Report on the Gamkapoort Government Water Work. Cape Town, 1962.*
- WP G.-'67 *Supplementary Report on the proposed Gamkapoort Government Water Work. Cape Town, 1967.*
- Copies or Extracts of Despatches, and of their enclosures, received during the years 1843 and 1844 from the Governor of the Cape of Good Hope, relative to a Plan for Improving Discipline among the Convicts, and Employing them on the Roads of the Colony. London, 23 July 1847.*
- G. 21-'57 *Report of the Superintendent-General of Convicts on the working of the Convict System during the years 1855 and 1856. Cape Town, 1857.*
- A. 73-'59 *Detailed Statements of Expenditure, etc., under the head of Convict Discipline. Cape Town, 1859.*
- A. 11-'67 *Proceedings and Report of the Commission on Convict Diet. Cape Town, 1867.*
- G. 12-'67 *Report of the Superintendent-General of Convicts for the year 1866. Cape Town, 1867.*
- G. 55-'81 *Memorandum upon the Discipline and Maintenance of Convicts during the year 1880. Cape Town, 1881.*
- G. 62-'82 *Memorandum upon the Discipline and Maintenance of Convicts during the year 1881. Cape Town, 1882.*

- G. 63-'83 *Memorandum upon the Discipline and Maintenance of Convicts during the year 1882. Cape Town, 1883.*
- G. 37-'84 *Memorandum upon the Discipline and Maintenance of Convicts during the year 1883. Cape Town, 1884.*
- G. 44-'86 *Memorandum upon the Discipline and Maintenance of Convicts during the year 1885. Cape Town, 1886.*
- G. 50-'87 *Memorandum upon the Discipline and Maintenance of Convicts during the year 1886. Cape Town, 1887.*
- A. 12-'88 *Report of the Select Committee on Convict Stations and Prisons Bill. Cape Town, 1888.*
- G. 2-'88 *Report of the Committee on Convicts and Gaols, September, 1887 - May, 1888. Cape Town, 1888.*
- G. 54-'88 *Memorandum upon the Discipline and Maintenance of Convicts during the year 1887. Cape Town, 1888.*
- G. 39-'89 *Report upon the Discipline and Maintenance of Convicts during the year 1888. Cape Town, 1889.*
- G. 38-'90 *Reports on the Management and Discipline of Convict Stations and Prisons for the year 1889. Cape Town, 1890.*
- G. 26-'79 *Report on the Progress and Working of the Railways of the Colony, during 1878. Cape Town, 1879,*
- G. 43-'80 *Reports on the Progress and Working of the several Railways of the Colony for the year 1879. Cape Town, 1880.*
- G. 45-'80 *Report of Inspection for Proposed Line of Railway between Mossel Bay and Oudtshoorn. Cape Town,*

1880.

- G. 45D-'80 *Reports to ascertain the best possible lines of Railway Extension in the Colony, - Survey of route from Mossel Bay to Oudtshoorn via George and Montagu Pass - (Alternative Route). Cape Town, 1880.*
- G. 45F-'80 *Reports of Inspection made to ascertain the best lines of possible railway extension in the Colony. - vii. Klipplaat and Oudtshoorn Junction Line. Cape Town, 1880.*
- G. 45K-'8 *Maps to accompany the several reports of inspections made to ascertain the best lines of possible railway extension in the Colony. Cape Town, 1880.*
- G. 45L-'80 *Report by the Railway Engineer of the Colony upon various reports of inspections made to ascertain the best lines of possible railway extension in the Colony. Cape Town, 1880.*
- G. 60-'81 *Reports on the construction and progress, etc., of the several railways of the Colony, for the year 1880, with remarks by the Railway Engineer for the Colony on additional surveys and inspections for extensions. Cape Town, 1881.*
- G. 61-'81 *Reports of inspections to ascertain the best lines of possible railway extension in the Colony. No. v. - Mossel Bay and Oudtshoorn Railway; further report and revised estimate. Cape Town, 1881.*
- G. 33-'82 *Report of the General Manager of Railways for the year 1881. Cape Town, 1882.*

- A. 92-'82 *Return in compliance with a resolution of the Honourable the House of Assembly, adopted on the 25th of May, 1882, namely, "That there be laid on the table of this House a report of the flying railway survey between Montagu and Oudtshoorn, in accordance with resolution passed by this House last session". Cape Town, 1882.*
- A. 61-'83 *Reports on the construction and progress, etc., of the several railways of the Colony for the year 1882, with remarks by the Railway Engineer for the Colony on additional surveys and inspectins for extensions. Cape Town, 1883.*
- G. 111-'83 *Reports by the Chief Resident engineer, Midland Railways, upon the result of surveys for a junction between the Midland and Eastern Railways. Cape Town, 1883.*
- G. 46-'84 *Reports on the construction and progress of the several railways during the year 1883. Cape Town, 1884.*
- G. 47-'84 *Report of the General Manager of Railways for the year 1883. Cape Town, 1884.*
- G. 22-'88 *Report by A.G. Dalton, of a flying survey for a line of railways from Oudtshoorn to Beaufort West, via Towerwater's Poort. Cape Town, 1888.*
- G. 27-'89 *Report of the General Manager of Railways for the year 1888. Cape Town, 1889.*
- G. 40-'93 *Reports by Mr A.G. Dalton of a survey, sufficiently accurate for the purpose of a detailed estimate, for a line of railway from Constable to the east end of Caledon Kloof; of a flying survey - Oudtshoorn via George to Mossel*

Bay; of an inspection - Oudtshoorn - Barroe; and of a survey for a narrow gauge railway from Mossel Bay via George to Oudtshoorn. Cape Town, 1893.

A. 13-'91 *Report upon the discovery of gold in the Division of Prince Albert, by the Geological and Irrigation Surveyor. Cape Town, 1891.*

A. 45-'93 *Report upon the geology and mineral resources of the Division of Prince Albert and surrounding districts by A.R. Sawyer, F.G.S., A.R.S.M. Cape Town, 1893.*

VII. ARCHIVAL SOURCES

Unpublished

1. Cape Archives Depot

Except where otherwise stated, all archival material referred to in footnotes is preserved in the Cape Archives Depot.

1.1 Public Works Department (P.W.D.)

P.W.D. 1/234 - 1/239, 1/241, Letters Received: Secretary
1/244 - 1/247, 1/249 for Public Works, 1873 Jan. -
1/250, 1/252 - 1/254 1903 June.
1/256 - 1/258.

P.W.D. 1/280, 1/290, 1/293, Letters Received: Road and
1/294, 1/298 Building Works Officials, 1874
Jan - 1902 Dec.

P.W.D. 1/315, 1/316 Letters Received: Civil
Commissioners and Resident
Magistrates, 1875 Jan. - 1884

Jan.

P.W.D. 1/320, 1/321

Letters Received: Secretaries, Divisional Councils, 1875 Jan. - 1896 July.

P.W.D. 1/545 - 1/553

Letters Despatched: General Series: Roads, 1859 Jan. - 1900 Aug.

P.W.D. 1/584, 1/585, 1/587 - 1/593, 1/595 - 1/602

Letters Despatched: Secretary for Public Works: Works and Roads, 1872 July - 1900 Oct.

P.W.D. 1/658

Letters Despatched: Specified Subjects, 1869 June - 1907 Mar.

P.W.D. 1/713, 1/714

Letters Despatched: Semi-Official, 1862 Aug. - 1898 May.

P.W.D. 1/762 - 1/764

Report Book: Roads, 1860 Feb. - 1886 June.

P.W.D. 1/825, 1/826

Letters Despatched: Semi-Official, 1872 Feb. - 1900 April.

P.W.D. 1/1/70

Zwartberg Pass, 1887 - 1895.

P.W.D. 2/26 - 2/28, 2/30 - 2/33, 2/35, 2/40 - 2/43, 2/45 - 2/47.

Letters Received: Chief Inspector of Public Works 1872 - 1886.

P.W.D. 2/58, 2/83

Letters Received: Government Departments 1872 - 1886.

P.W.D. 2/145, 2/148, 2/151 2/152

Letters Received: Municipalities, Divisional Councils, Chambers of Commerce 1872 - 1886.

P.W.D. 2/160, 2/161	Letters Received: Sundry Committees 1872 - 1882.
P.W.D. 2/227	Letters Received: Colonial Secretary 1873 - 1885.
P.W.D. 2/333	Letters Received: Crown Agents for the Colonies, London 1873 - 1882.
P.W.D. 2/732	Memoranda Despatched: 1881 - 1897.
P.W.D. 2/761	Memoranda and Reports on Parliamentary Motions: 1886 - 1903.
P.W.D. 2/5/203	Humansdorp, Roads: 1891 - 1899.
P.W.D. 2/5/277	Mossel Bay, Roads: 1900 - 1905.
P.W.D. 2/5/317, 2/5/320	Oudtshoorn, Roads: 1885 - 1905.
P.W.D. 2/5/325	Oudtshoorn: 1905 - 1907.
P.W.D. 2/5/365, 2/5/366	Prince Albert Toll-Bar and Roads: 1881 - 1900.
P.W.D. 2/5/368	Prince Albert, Roads: 1900 - 1909.
P.W.D. 2/5/462	Uniondale, Roads: 1894 - 1900.
P.W.D. 2/5/483	Willowmore, Roads: 1892 - 1901.
P.W.D. 2/9/18	P.W.D. Staff: 1882 - 1905.
P.W.D. 2/10/93	Official Correspondence: 1893 - 1905.

P.W.D. 2/11/4

Employment of Convicts: 1889 - 1899.
Prince Albert, Zwartberg Pass: 1902.

P.W.D. 2/11/49

Roads and Bridges: 1885 - 1902.

1.2 Colonial Office (C.O.)

C.O. 671

Letters received from Central Road Board, 1855 - 1856.

C.O. 2770, 2794

Letters received from Civil Commissioner and Resident Magistrate, Uitenhage and George, 1828 - 1841.

C.O. 4044, 4110

Memorials received, 1836 - 1888.

C.O. 6378

Letters received: Convict Station, Tzitzikamma, Zwartberg, 1883.

C.O. 6383

Letters received: Convict Station, Tzitzikamma, Zwartberg; Colonial Secretary's Office, 1884.

C.O. 6384

Letters received: Convict Station, Storm River, Zwartberg; Miscellaneous Departments, 1885.

C.O. 6390

Letters received: Convict Station, Fort Cunyngham, Storm River, Zwartberg; Public Works, 1887.

1.3 Road Boards

1.3.1 Central Road Board (C.R.B.)

C.R.B. 1-15 Minutes: 1843 Dec - 1859 Sept.

1.3.2 George Road Board and Divisional Council

R.B.G. 1 Board Minutes: 1845 Feb - Oct 1855.

R.B.G. 2 Letters received: 1849 Jan - Apr
1855.

R.B.G. 3 Letters despatched: 1845 Feb -
Oct 1855.

1.4 Nederduitse Gereformeerde Kerk

1.4.1 Oudtshoorn

G 53 4/6 Oudtshoorn huwelik: 1879 - 1886.

1.4.2 Prince Albert

G 64 4/3 Prince Albert huwelik: 1877 - 1897.

1.5 Divisional Council Prince Albert (4/PAL)

8/3/1/1 Cash Book: 1879 Jan - 1894 Oct.

1.6 Map Collection

M 3/3044 Map accompanying Thomas Bain's
report on the destruction of
Meiring's Poort, 22/6/1885.

M 3/533 Plans and sketch of the Zwartberg
Pass, 31/7/1879.

1.7 Photographs

*(All other photographs are listed under "Illustrations", p.
iv.)*

J. 5348 The zig-zag on the northern side
of the Zwartberg Pass.

- J. 5686 A spring-cart in the Zwartberg Pass near "Tweede Water".
- J. 10638 Prince Albert and view of entrance to the Zwartberg Pass.
- J. 10639 A drift ("Tweede Water") in the Zwartberg Pass.
- J. 10640 A drift ("Eerste Water") in the Zwartberg Pass.
- J. 10644 Panoramic view of northern side of Zwartberg Pass looking down on the Convict Station.
- J. 10645 A mule cart with attendant on the southern side of the Zwartberg Pass.

2. Historical Manuscripts

2.1 Jagger Documents and Manuscripts Library (U.C.T.)

2.1.1 The Bain Family Papers

- BC 543 8 (b) A.G. Bain - Major Selwyn Correspondence.
- BC 543 8 (c) A.G. Bain - John Montagu
- BC 543 8 (d) *Grahamstown Journal*, 30/12/1834.
- BC 543 9 A.G. Bain's Personal Bound Copy of Cape Road Reports and Correspondence.
- BC 543 11 (a) Copy of Geological Report on the Namaqualand Copper mines by A.G. Bain, 1854.

BC 543 11 (b) Copy of E.P. Magazine (1857), Article from *Geology of South Africa*, and Reminiscences and Anecdotes connected to Geology, by A.G. Bain.

BC 543 11 (d) Typescript Copy of *Geology of South Africa*, Part II, by A.G. Bain.

BC 543 14 (a) List of descendants of A.G. Bain.

2.1.2 Patricia Storrar Papers

BC 812 A2 P.S. - Murray and Roberts, 1982 - 1985, and new Blaaukrantz bridge.

BC 812 A3 Thomas Bain with individual Government Departments re his work.

BC 812 B2 Thomas Charles John Bain.

BC 812 F Research Notes for a "*Collosus of Roads*".

2.1.3 *Extracts from the memoirs of P. Borchers* (Jagger Documents Library, UCT).

2.2 South African Library

Crail Collection - Photocopies of Index Cards, annotations and references, manuscripts, correspondence, maps etc. collected by Mr Peter Crail.

2.3. Fransie Pienaar Museum, Prince Albert

Photocopies of various documents and articles relative to the Prince Albert and Karoo Gold Fields.

Photographs of Gamkaskloof.

VIII. VARIA

1. Interviews and Oral Information

- 1.1 Mr R.V. Reilly, Technical Assistant (Civil), Oudtshoorn, 18/9/1990 and 13/8/1991.
- 1.2 Mr Jordaan, Districts Road Engineer, Oudtshoorn, 18/9/1990.
- 1.3 Mr G. McCann, Former Forest Road Builder and author of articles on T. Bain, 18/9/1990 and 20/9/1990.
- 1.4 Mr G. Bellcross, Director of Bartholomew Diaz Museum, Mossel Bay, 20/9/1990.
- 1.5 Mr P.J. Swanepoel, Former Resident Farmer in Gamkaskloof, 1/1/1991.
- 1.6 Mr J.H. van Zyl, Roads Inspector of Nieuwe-Roggeveld Divisional Council and former bulldozer operator of Gamkaskloof Road, 12/8/1991.
- 1.7 Mr M.D. Radford, Pr Eng B Eng Hons-Civil.
- 1.8 Mr and Mrs Marincowitz, Prince Albert District, 12/9/1991.

2. Private Correspondence in possession of author

Z. Kovás, Deputy Chief Engineer, directorate of Hydrology, Department of Water Affairs, 12/11/1990.

E.R.G. Eastes, Telkom, Western Cape, 5/12/1991.

Prof A.T. Visser, South African Institute of Civil Engineers, 11/10/1990.

Traffic Counts for Main Road 00369, C.P.A. Roads and Traffic Administration Branch, Cape Town.

